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VOL. XXVIII. ATLANTA, GA., JUNE, 1898. NO. 6.

Original Articles.

SURGICAL CASES REPORTED TO THE LOUISVILLE MEDICO-CHIRURGICAL SOCIETY.*

By WILLIAM L. RODMAN, A.M., M.D.

Professor of Surgery and Clinical Surgery in the Kentucky School of Medicine; Surgeon to the Kentucky School of Medicine Hospital; Surgeon to the Sts. Mary and Elizabeth Hospital; Consulting Surgeon to the Louisville City Hospital, etc., Louisville, Ky.

The first patient, D. W., male, aged thirty-five years, I am able to show you through the courtesy of Professor James M. Holloway. It is a very interesting case of multiple enchondroma, and I think several of the gentlemen present assisted in one or more of the operations that have been performed upon him. I also present for your inspection several photographs showing the patient's condition at different times, and a skiagraph of his right arm before an atypical resection of the elbow last summer. Unfortunately, Doctor Holloway is unable to be present this evening; he was to have brought a photograph giving an accurate idea of this man's condition before the first operation, but I have found an exact copy of it in Park's "Surgery."

As above stated, the case is one of multiple enchondroma, and is really one of the most remarkable on record. I do not know of a case more interesting than this, unless it be the celebrated case of Steudel, which is represented in nearly all of our works on surgery. The cut in Park's "Surgery" shows the man before any of the operations were performed upon him; the different photographs show his condition after the first, second, third, fourth and fifth operations.

DR. A. M. CARTLEDGE: I remember this case distinctly, and this is the first time I have seen the patient since the first operation, which was a synchronous triple amputation. It was a

*Stenographically reported for this journal by C. C. Mapes, Louisville, Ky.

very extensive case of multiple enchondroma involving the hands and feet originally. The first operation was performed several years ago. The patient was under the care of Doctor James M. Holloway, who invited a number of his surgical friends to assist him in the operation. I believe I amputated a portion of the left foot, and some of the other gentlemen present operated upon the hands, removing several of the fingers which contained masses of enchondromatous tissue as large as potatoes. The patient at that time presented some enchondromatous masses about the shoulder and upper part of the humerus which it was not deemed advisable to attack surgically. I am a little astonished that the patient is able to be here to-night; that he has lived so long after such extensive operative interference.

DR. W. L. RODMAN: While these tumors were originally benign—undoubtedly enchondromatous in their nature—the last examination made, I think, during the past summer when an atypical resection of the elbow joint was performed, was submitted to the microscopist and pronounced to be sarcoma, showing that degeneration of the enchondroma into sarcoma had already taken place. As the patient has now been excused, I will say that Doctor Holloway is going to amputate the right arm to-morrow morning, because of the enormous sarcomatous enlargement involving the elbow. I think the original operations upon this man were performed five years ago.

Case 2. This patient, Mr. H., you will remember as having been before this society on a previous occasion, just prior to an operation upon the right leg. He had at that time a very much enlarged condition of the knee, an enlarged inner condyle, evidently tuberculous in character. Prior to that time I had gone into a number of the other joints; I had removed the entire sterno-clavicular joint upon both sides; I had gone into both shoulder joints and resected the upper part of the humerus; I had also removed the spine of the scapula on the left side, also a part of one of the ribs; and the last operation was done upon the knee a year ago last month. His general condition at the time was far from good, yet the result of the rather extensive surgery has been most excellent. Notwithstanding the fact that I went into the joint and removed the entire inner condyle, he has recovered without a stiff knee; you will observe that he walks freely and without limp. His general condition has greatly improved within the last year. He has a tubercular history in the family, but I think at the present time his lungs are entirely clear.

Case 3. The third case is also a very interesting one; it is a compound fracture of the middle of the thigh, which occurred in Indiana last July. The wound became infected and the man was afterwards brought to this city to me, and we had a desperate fight to preserve the leg. We thought for a long time that he would lose his leg on account of the very extensive

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fracture and the fact that it was suppurating so freely when he came here and continued to do so for a long time afterwards. We had to go into it a number of times and remove pieces of dead bone; then afterwards the parts were immobilized in plaster, and I think we have secured a very good union for a compound fracture of the femur. Motion at the present time seems to be very much restricted at the knee on account of the long encasement in plaster, but since the plaster was removed last Monday there has been some improvement and I doubt not motion will speedily return.

I have had few more interesting cases than this. When the man was first brought here it was thought the leg would have to be amputated, and we also felt that the patient might lose his life on account of the extensive suppuration. I feel very much gratified at the outcome. Had he been less robust I think he would not only have lost his leg but lost his life as well.

Union was very much delayed; it was four months after the fracture before there was any attempt at union. There is not more than three-fourths of an inch of shortening. I anticipated that there would be at least two and a half or three inches shortening, on account of the oblique nature of the fracture, and am really surprised that shortening is not much greater than it is.

I removed the sequestra of bone, freshened the edges with pliers, rubbing the ends of the bone together freely, then held them in apposition by means of a plaster dressing.

The patient was brought to me one month after the injury.

DR. ERNEST LAPLACE, of Philadelphia (present by invitation): The case of multiple enchondromata shown by Doctor Rodman is certainly one of the most remarkable I have ever seen, especially from its etiological standpoint. The great problem underlying the development of sarcoma is far from being solved. There is evidently something which enters the body, develops there, and while developing forces a commensurate development of new tissue. We do not know its nature or the peculiarities of its development. This irritant does not develop a toxin virulent enough to destroy the cells which it brings into existence. Very different is it from the action of the streptococcus pyogenes areus.

By way of explanation, I would say that apparently a strange paradox exists in pathology, viz.: some virulent germs produce innocent diseases, and vice versa. The most innocent disease we know is perhaps an abscess. As soon as the streptococcus develops, it produces a toxin which kills immediately the white blood corpuscles, and they undergo fatty degeneration, resulting in pus or the formation of an abscess.

Would that the living organism that may be the cause of sarcoma were as virulent as the streptococcus pyogenes and some of the other germs, for then instead of having a mass of new tissue we would have the formation of pus. Unfortu-

nately that germ is not virulent enough; it develops constantly, and under this constant irritation a constant proliferation process goes on within the tissue and accumulates there as a mass, and that mass forms such a tumor as has just been before us, the so-called round-cell sarcoma.

Through the courtesy of my friend, Doctor Rodman, I had an opportunity this morning to examine this man, and putting my hand on the swelling at the elbow the thought occurred to me that it might be an abscess, so soft and fluctuating seemed the mass. Doctor Rodman afterwards told me the previous history of the case; that it had been a case of multiple enchondroma, etc. I am more than thankful for this opportunity to bring out this thought, that a man's system is such that it is capable of undergoing a peculiar change under the influence of a pathological process. Now this man at some time during his life developed a peculiar diathesis by which the cartilages, above all other portions of the body, became the seat of new tissue development. It matters not whether the growth be an osteoma or an enchondroma as far as the original disease is concerned; it is practically the same thing; it is always the fibrous tissue that is at fault. Therefore I imagine at first this man developed a disease not unlike that which we find in children called osteo-myelitis of adolescence, where through the whole body small abscesses form within the bones because of infection by the streptococcus pyogenes. In this man a similar condition occurred, except that the infection was not as virulent as from the streptococcus pyogenes, because that organism would have destroyed the cells and we would have had the formation of pus instead of an enchondromatous mass. It developed slowly, and as the cells grew produced a mass, or it may be many masses, of imperfect cartilage cells. We have an analogous condition in the so-called multiple fibromata, where, instead of the cartilage being developed, we have a number of fibromate developed all over the body. I remember a man who had at least fifty of these fibromata scattered over the body.

When an operation is performed and these tumors are removed, we do not in any way improve the character of the soil. Shock lessens the vitality of the patient, and whereas he was previously a suited subject for the development of this particular disease, he is now more suited; in other words, it is the common experience of all of us in removing malignant tumors, that after the growth is removed it often returns with doubled activity. In this man's original condition the tumors were fibrous and hard; now the tumor present is very soft. It grows faster and faster simply because of lessened vitality of the soil.

Nothing could be a better lesson to us than this case to bring out the clinical fact, that all tumors, no matter how benign they may seem, should be removed. These tumors have a great tendency to undergo the so-called sarcomatous degenera-

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tion, which term is not suited to the modern notions of the case, inasmuch as we do not deal with a growth which undergoes degeneration, but the sarcomatous condition is simply an expression of the same old growth returning, developing so rapidly that instead of the cells having had time to go on to maturity or fully formed fibrous cells, they grow so rapidly that they are found in their adolescence and a soft mass is the result. This feature is aptly illustrated by the case which has been before us; whereas this man had hard growths in the beginning of his trouble, the one which is present to-day seems to be as soft as an abscess. The cells are of the granulation or round variety; the oldest ones have reached a degree of spindle shape, and as a result there is absence of hardness which we would expect in an ordinary fibroma. Therefore I feel very confident that when this tumor is removed and submitted for examination a large mass of round cells will be found which is one of the points of differentiation between rapidly developing growths and those which grow slowly, and if we knew nothing of the circumstances would say at once this specimen came from a growth which developed very rapidly because it is made up principally of round cells.

Another way of illustrating the subject which I have used several times is simply this: You can judge whether a village is growing rapidly in its population, or whether it is at a standstill, by observing the number of children. If you go on the street and see only grown people, you say the town is not developing; if, on the contrary, you see a great many children, you say it is a rapidly developing place. When the pathologist submits a specimen of a tumor like this to microscopical examination and sees all round cells, he will tell you without knowing anything further about the case, that the tumor is a rapidly developing round-cell sarcoma. If, on the contrary, he had one of the first tumors removed from this patient made up of hard fibrous tissue, he would tell you that it was a tumor which had developed slowly.

The only point I desire to bring forward is this: I believe that the rapidity of a growth, its malignancy, and the slowness of its growth, its benignity, depend not so much upon the seed as upon the soil; and I maintain that whereas the seed is the same the growth depends upon the nature of the soil; that a soil which is little suited to development at first as time goes on becomes more suited, the growth develops more rapidly, showing the varios characteristics of the sarcomata—fibrous cells, spindle-shaped cells, and round cells.

DR. CARL WEIDNER: I can hardly add anything to the excellent exposition which Doctor Laplace has given us, and we all probably agree with him in the explanation offered as to the histological development of sarcomatous tumors, and the occasional change in character of growths from benign to malignant. We do not know anything about the etiological factor of sarcoma; we are totally ignorant as to whether it is

a micro-organism that spends its force here—and the chances are more in favor of that than anything else—or whether there is some condition of the system now unknown to us. I think surgeons have recognized more and more that it is the safest plan to remove thoroughly and early any growth with which they meet. The previous speaker has given us such a beautiful explanation of the histological development of the growths under consideration that I can add nothing.

The idea advanced by him concerning the relative effects of the more virulent organisms and those of the less virulent ones is a very pretty one, and is in accordance with clinical facts. Unfortunately we do not know anything about the morbid agent in sarcoma. Whatever this unknown agent may be, however, it must be something that spends its force slowly and is fought by the organism for sufficient length of time to enable the individual cell to resist its irritation so that it may still live, while with the more virulent toxins of the pyogenic organisms the cell is rapidly destroyed and converted into masses entirely foreign to the body.

I am not personally aware of the changes which have taken place in the case reported. Since seeing the patient here and the photographs I remember having been present at the last operation done by Professor Holloway on the elbow, and remember that the Doctor laid stress upon the softened cystic condition of the tissues, which he ascribed to the formation of a gelatinous substance within them. We know that any tumor is liable to undergo various degenerations, such as colloid, mucoid, etc. I do not know whether the previously removed tumors showed any signs of malignancy, as I do not remember to have made the examination.

DR. A. M. CARTLEDGE: We are all indebted to Doctor Laplace for the excellent exposition of the subject which he has given us. Certainly in the entire range of pathology we meet with nothing of so much interest at the present day as the subject of sarcoma. This disease has always been to me one of the greatest interest. It occupies a mid-position, and the facts brought out by Doctor Laplace suggest others, and certainly we have all been interested in them His remarks suggest the correlation of germs in a marked way. To go a little further back and elaborate one point, assuming, as he says, something we do not know positively, and to reason from analogy, the similarity between sarcoma and the granulatoma is one of the most striking in pathology; and while we have had very little upon which to base the opinion that carcinoma is an infectious disease, we have many reasons to believe that the sarcomas are infectious or germ diseases. Certainly similar tissue changes in a measure take place in sarcoma as take place in tuberculous processes, in actinimicosis and in syphilis. I was especially struck with what Doctor Laplace said in regard to the organism of sarcoma; it is a beautiful theory, and one that has a practical bearing upon the etiology of the

malignant and benign growths. Like the Doctor, I do not believe in true sarcomatous degeneration; it is a mistake to make a statement of this kind. We often speak of an enchondroma or any innocent growth undergoing sarcomatous degeneration, which I believe is based upon a wrong conception. My idea is that there is not a degeneration but a secondary infection; the soil is prepared by a more innocent influence, and then there occurs a secondary infection; and certainly we have many reasons to believe that sarcoma is an infectious or germ disease. We must realize that benign growths create a favorable soil for the development of malignant tumors.

The Doctor spoke of the primary slow development of a sarcoma; then as the soil becomes better suited there is a rapid infiltration and dissemination of the disease. I have been impressed with this fact in two recent cases which I have prominently in my mind. Sarcoma may sometimes last a long time of a fairly virulent type; then we may have a rapid develop, ment coming on rather suddenly, with the formation of large nodules and other well-known characteristics, showing that the soil becomes more favorable for the development of the disease as it progresses, and rapid proliferation finally takes place.

The practical deductions to be drawn from such cases are, that we should view all the so-called benign neoplasms, in the light of modern surgical knowledge, as peculiarly liable to undergo not a malignant degeneration but a secondary infection. The soil is prepared for a secondary mixed infection, and we should remove all such growths early and thoroughly, as Doctor Weidner has said.

With further reference to the correlation of germs: We know in what a remarkable degree the tubercle bacillus prepares the soil for pus organism, and we know also in that secondary or mixed infection there are tissue changes due to the tubercle germs, although little impression may be made upon the general system of the patient. The soil is prepared by infection with the tubercle bacillus, and is better suited for the development of other forms of disease. The same thing applies to enchondroma, fibroma, and other so-called innocent neoplasms, and I am led to believe there is a more intimate relationship between the different organisms, of which we have no knowledge at present, than we have hitherto assumed. A study of this correlation would be extremely interesting, and might be a valuable aid in the possible determination of the germ which is probably responsible for the development of sarcoma and other neoplasms.

TWO CASES OF PRIMARY TUBERCULOSIS OF THE PROSTATE REPORTED TO THE LOUISVILLE CLINICAL SOCIETY.*

BY WILLIAM C. DUGAN, M.D.

Professor of the Principles and Practice of Surgery and Surgical Pathology in the Louisville Medical College, etc., Louisville, Ky.

I have here two gentlemen, brothers, private patients, who have kindly consented to come before you for examination, and who present a very unusual clinical feature. They are from Kentucky, and they have been suffering for a number of years with, first, irritation of the bladder, being unable to retain their urine more than half an hour at a time; symptoms of stone in the bladder, the passage of blood, pus, etc. They are unable to sleep at night, one of them especially having to be up nearly all the time emptying his bladder, and this patient told me, coming here to-night, that he was unable to sleep at all the first part of the night, that he was relieving his bladder almost continually. Pain is very great in both cases.

Some time ago the older of the two gentlemen came here to consult me for disease of his left testicle, which was then in an ulcerating state, and upon examination I found it to be in an advanced stage of tuberculosis, both the testicle and epididymis being involved. I also found that the cord was involved as high up as I could reach and almost as large as my finger. Pain at that time, owing to involvement of the skin and the immense amount of inflammation, was very great, and immediate operation was advised. The opposite testicle was also involved, but not nearly so far advanced. There were no adhesions, the epididymis was large, hard and painless. I simply removed the left testicle, leaving the right intact, as it appeared to be only slightly diseased. I did not examine his prostate at that time, expecting to do so before he returned home, but he went home while I was sick and the matter was neglected. The wound healed fairly well. I should have said upon examining the specimen I found that the cord—while I took it out as far up in the cavity as I possibly could, opening the inguinal canal, making the wound as large as I could, then with retractors went down as deeply into the pelvis as possible, lifting the cord out of the wound, hoping by this means to get beyond the disease, but I failed to do so. I left remnants of the disease in the stump. When the testicle was laid open there was very little of the parenchyma left and there were tubercular deposits throughout between the testicular structures. The epididymis was destroyed, and the cord presented one of the most interesting pathological conditions that I have ever met with. The tubercular deposits looked much like beans with the hull laid open, the cord being filled

*Stenographically reported for this journal by C. C. Mapes, Louisville, Ky.

with such deposits from one end to the other. Upon section with the knife it made a grating sound, the tubercules having undergone caseation.

He returned home and has had, just as we would expect, more or less discharge from the proximal end of the cord because of the fact that I did not get beyond the limit of the disease.

He came back to the city this morning and I examined him and asked him to come here to-night.

In the younger subject there is no involvement of the epididymis, but he gives a history of stone in the bladder. When the searcher was introduced we found his bladder very much contracted, thus making the examination very unsatisfactory. When examined per rectum we found that characteristic nodular feeling that you would expect in tuberculosis of the prostate and visicular seminales.

The older brother was then examined per rectum (the one whose left testicle had been removed), and I found a condition identical with the other one. I never in my life found two pathological conditions as much alike as in these two cases.

Now, the question I desire to ask is, what can be done for these two men? You will see that they are apparently in good health, generally speaking; they are anxious to be relieved of this distressing local condition and are willing to undergo almost anything to attain that end.

The question of castration has been considered. Will this be of as much advantage in tuberculosis of the prostate with testicular involvement as for enlargement of the prostate in old men? The first case operated upon in this city for bilateral tubercular testis where there was prostatic enlargement was performed in 1887. The man had just such a condition as you observe in the younger of the two men before you; the testicles were removed, and I told him the next operation would be removal of the prostate gland, but to my great surprise his symptoms from that time on improved, and in the course of three or four months instead of urinating every fifteen or twenty minutes he could retain his urine for an hour or more; he slept nearly all night and experienced very little of the paroxysmal pain which had been so common up to that time. He went on and entirely recovered from tuberculous prostatitis. I examined him not long ago and the prostate has become a hard mass not more than half as large as the phalanx of the finger. Now, the question is, can we expect such a result by double castration in the younger case before us, or shall we remove the tuberculous prostate and leave the testicles intact? If we leave the prostate as it is we are sure to have involvement of both testicles sooner or later. In case there appears to be no involvement of either testicle at present, but I am satisfied if proper treatment is not promptly instituted the result will be the same as in the other case where I removed the left testicle some time ago. I am almost certain in the

first case that the prostate was the seat of the primary tuberculosis, and that the testicle was affected secondarily.

I would like to hear from some of the members of the society in regard to the advisability of double castration in the second case, or whether it is best to remove the prostate.

There is no other complication in either case; there is no history or evidence of tuberculosis elsewhere in the body. I remember several years ago having presented before the old Louisville Medical Society, now extinct, a specimen of tubercular testis, and in presenting the specimen certain members of the society took the ground that such operations should not be performed, inasmuch as this deposit only indicated a a general tuberculosis, not being willing to admit a local tuberculosis, which all of you will join me in saying is very common at the present time.

There is no history of specific or venereal disease in either case; both of the men are farmers and have lived in the country all their lives. The older one is forty, the younger thirty-eight years of age.

DISCUSSION.

DR. CARL WEIDNER: I do not desire to say anything about Dr. Dugan's cases from a surgical standpoint, but will leave that for some of the surgeons present. It is rather remarkable that both these patients should be affected with tuberculosis in identically the same locality; and further, that neither shows evidence of the disease elsewhere. However, that local tuberculosis occurs frequently, as stated by the reporter, I am prepared to admit. Still I look upon these cases as curiosities, being identical, with a family history that is practically without fault.

I do not believe very much in removing the testicles for the cure of prostatic enlargement in general, although I am aware the surgeons think otherwise, never having been able to convince myself of its utility. In a condition of tuberculosis particularly, I am doubtful whether it would be of any benefit. If the prostate is filled with caseous material, which I venture to say is a fact, I see no possibility of lessening the amount or of deriving benefit in cicatrization, condensation or fibrosis, the natural processes of cure we might say in tuberculous affections elsewhere, by removal of the testicles. I can see no reason for carrying out this procedure. If an operation can be done which shall have for its object the removal of the affected structures, then I believe it should be performed. Of course, in the one brother with the diseased testes and epididymis, these structures should be removed.

DR. T. P. SATTERWHITE: There is unquestionably an enlargement of the prostate in both cases. The vesicules seminales are distinctly involved in one case, and there seems also to be a deposit in the other, probably of the same character of material. Both these conditions will cause irritation of the

bladder. It has been conclusively proven by operation, in one of the cases at least, that the trouble is tuberculous, and my opinion is that all tuberculous deposits, no matter where located, should be removed. The only suggestion I could offer would be to make an opening above the symphisis pubis, distending the bladder as far as possible, and make an examination of the interior of the bladder. My reason for suggesting this is that, if an operation should be performed and there should be fungous growths or tuberculous deposits within the bladder, it would be extremely unfortunate while performing the operation to omit the removal of any diseased structure. It would be well to investigate the interior of the bladder by ocular as well as digital means. I do not know what the result of the latest investigation is in regard to the transmission of tuberculosis to the ovum in cases of this kind, and this feature would be interesting for us to consider, and if it can be communicated in this way it would another strong argument in favor of operative interference—if there is the least danger of transmitting the disease to the offspring.

DR. W. C. DUGAN: Answering Dr. Satterwhite: According to all modern authorities these men are sterile from the earliest deposit of tuberculous material in the epididymis. This is perfectly natural and reasonable when the location of the deposit is considered, viz.: in the wall of the excretory ducts, practically filling the caliber of these ducts, so if the secreting portion of the testicle were normal, it is shut off mechanically from the prostate by virtue of the deposit in the epididymis. This is borne out by the statements of both these gentlemen. One of them has two children, the youngest twelve years old; the other has one child about six years old, and the oldest patient states he first began to have symptoms of bladder trouble, etc., twelve years ago, and in the other case it has been five years since he first noticed any symptoms.

In regard to operative treatment: My idea is to open up the perineum from below and explore it thoroughly and determine as near as I can what is to be done and then proceed to remove the tubercular deposit. I thought of opening from above, but the bladder is so contracted that I could hardly examine with an ordinary searcher for stone, so there is no room.

I should have stated that, on examination of the urine by the method of Ultzman, taking three bottles and securing three samples of the urine, one at the first washing, one from about the middle third, and then the last squeezing of the bladder, the first was clear, the second contained a little deposit, and the third contained quite a large amount of sediment. This shows conclusively that the the disease is prostatic, and as the bladder contracts the contents of the gland is squeezed out.

PREGNANCY FOLLOWING VENTROFIXATION WITH IMPROVEMENTS IN TECHNIQUE.*

BY A. LAPHORN SMITH, M.D., M. R. C. S., ENGLAND.

Fellow of the American Gynecological Society; Professor of Clinical Gynecology, Bishop's University, Montreal; Gynecologist to the Montreal Dispensary; Surgeon-in-Chief of the Samaritan Hospital for Women; Surgeon to the Western General Hospital.

His conclusions were based upon about 2,500 cases by 41 operators, including 111 cases of his own, reported in reply to a circular letter of inquiry.

1. That as far as curing retrodisplacement is concerned, whether retroflexion, retroversion, anteflexion with retroversion, also prolapse of the uterus, ventrofixation with two buried silk stitches passing through peritoneum and fascia gives the most reliable results. Failures are unknown when the operation is performed in this way.

2. Ventrofixation should be reserved for cases in which abdominal section is necessary for other reasons, such as detaching of adhesions and the removal of the diseased tubes which caused the adhesions. When it is expected that pregnancy may follow, some other operation should be chosen, because

3. Although pregnancy only followed in 148 cases out of 2,500, still in 30 per cent. of these, or 36, there was pain, miscarriage or difficult labor requiring obstetrical operations.

4. When suspensio-uteri was performed, that is, the uterus attached to the peritoneum, only a few relapses occurred; but on the other hand, the patients were free from pain during pregnancy and the labors were less tedious; neither did they require resort to serious obstetrical operations. The uterus therefore should be suspended rather than fixed to the abdominal wall in all cases in which any part of the ovary is allowed to remain.

5. A third method, it is claimed by some, namely, the intra-abdominal shortening of the round ligaments, is preferable to either ventrofixation or suspensio-uteri. This may be done either by drawing a loop of the round ligament into the loop which ties off the ovary and tube, or in cases in which the latter are removed, simply to detach them from adhesions and shorten the round ligament by drawing up a loop of it and stitching it to itself for a space of about two inches. By this means the round ligament develops as pregnancy advances, and the dragging and pain and other more serious accidents which are present in 30 per cent. of the cases of ventrofixation are certainly avoided.

6. If the uterus is attached to the abdominal wall, the stitches should be kept on the anterior surface but near the top of the fundus; the complications were more frequent when there was too much adversion than was the case when

*Author's abstract of paper read before American Gynecological Society at Boston 24th May.

the anterior surface of the fundus was attached to the abdominal wall.

7. As large surface as possible should be made to adhere, by scarifying both the anterior surface of the fundus and the corresponding surface of the abdominal peritoneum, in which case one buried silk suture will be sufficient to keep the uterus in good position.

8. Several of my correspondents mentioned incidentally that they knew of many cases of pregnancy after Alexander's operation, and that in no case was the pregnancy or labor unfavorably influenced by it. Alexander's operation should therefore be preferred whenever the uterus and appendages are free from adhesions.

9. The results of Alexander's operation are so good that even when there are adhesions it might be well to adopt the procedure of freeing the adhesions by a very small median incision and then shortening the round ligaments by Alexander's method; after which the abdomen should be closed. This could be done without adding more than ½ of 1 per cent. to the mortality, which in Alexander's operation is nil.

Selections and Abstracts.

JUNE—THE BRIDE MONTH.

June, the month of roses, the happy time for mating, the season when

> "So sweet, so sweet the calling of the thrushes,
> The calling, cooing, wooing everywhere."

When breezes blow and deep blue skies are flecked with fleecy clouds. No time of the year has been so favored of the poets, possibly because all Nature seems suggestive of wedded bliss, even the songs of the birds leading to thoughts of happy mating and joyous honeymoons. Perhaps Lowell's lines in his "Vision of Sir Daunfal" breathe the spirit of the month more nearly than any that have ever been written. He says:

> "What is so rare as a day in June?
> Then, if ever, come perfect days;
> Then Heaven tries the earth if it be in tune,
> And over it softly her warm ear lays."

But the physician has little time for looking at the world through poets' eyes. He may have the most delicate aspirations, the most sensitive appreciation of the beautiful, but it is the practical that chiefly claims his attention. As Nature airs her charming garb of green and rose, and breathes the balmy sighs that prefigure the sensuous torrid heats of summer, the doctor is compelled to devote his attention to the seamy side of the picture and resign himself to dancing attendance upon his annual crop of "June colds," early diarrhea, cholera infantum and cholera morbus, with here and there a case of pneumonia. He must take his thoughts from flowers, evening zephyrs, the songs of birds, and consider the contents of a boy's stomach or the condition of a child's bowels.

Early fruits and vegetables, particularly green apples and cucumbers, bring their penalties with their pleasures. The warm days tempt to undue abandonment of clothing, an indiscretion which is promptly avenged by the cool nights; the thirst caused by the increasing temperature is heedlessly gratified by iced drinks and the resulting digestive disorders are apt to be laid to the charge of anything rather than the unhygienic proceedings of the sufferer himself.

There is little doubt but that in the ranks of troubles incidental to this season, disorders of the intestinal tract are *facile princeps*. Consideration, therefore, of the etiology, diagnosis, prognosis and treatment of such is likely to prove of practical value to the general practitioner, and with this point in view *The World* collates what is best in current literature, present-

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ing needful facts in concise form, so that "he who runs may read."

Acute Diarrhea.—Possibly the most frequent of the intestinal disorders is acute diarrhea, or catarrhal enteritis. With this trouble there will be a history of injudicious eating, either of unripe fruit or of articles like ice-cream, cream puffs and veal, or even the excessive drinking of milk or water, pure or impure. Tyson says that although "hot weather favors intestinal catarrhs, especially in infants and older children, they are not so much the direct result of the heat as of its effect in weakening the resisting power of the child and favoring the decomposition and fermentation of food. The effect of heat on the nervous system of the very young may reasonably be regarded as a factor in increasing the irritability of the gastro-intestinal tract or so diminishing its functional power as to render the ingesta irritating. Cold, or rather a chilling of the body by a fall in temperature, is often followed by enteritis. Sometimes a hyperactivity of the liver will cause diarrheal discharges."

Anders gives as exciting causes the ingestion of local irritants, overeating, toxic substances, impure water, atmospheric changes, excess or lack of bile. He says these diarrheas have as their chief symptoms slight griping or colicky pains in the abdomen, followed by diarrheal stools, the discharges consisting at first of feculent masses and later of a watery, highly irritating fluid, either bright yellow or yellowish-brown in color, occasionally greenish from the presence of considerable bile pigment or from bacterial action. As a rule there is slight tympanitic distension. Sometimes high temperature is noted, and occasionally great weakness.

The views of the profession concerning the treatment of this trouble have changed greatly. Anders advocates the rigid abstinence from all injurious articles, and, where the cause of the trouble is established to have been the ingestion of such, the giving of a light purgative. Give albuminous food in liquid or semi-liquid form, and enjoin rest in bed. He gives the following prescriptions:

℞ Salol ..... ½ dram
Creasoti ..... m x
Bismuthi salicylat..... 1 dram
M. et ft capsulae No. xx. Sig.—
One every three hours.

If pain be troublesome combine opium or phenacetin with the above, or employ:

℞ Argenti nitratis..... gr ii
Ext. opii..... gr iss
M. et ft. pil No. xii.—Sig. One
every three or four hours.

Other authorities advocate abstention from all food except in the case of infants, the giving of bismuth subnitrate or of chalk mixture and of tannic or gallic acid in five-grain doses, while the various chlorodyns are recommended where there is

severe pain. Hot fomentations over the bowels and the enveloping of the abdomen in hot flannel are well spoken of.

Diarrheas of Children.—Three forms, more or less distinct, are recognizable in the diarrheas of children. Acute dyspeptic diarrhea, cholera infantum, and acute entero-colitis. The first of these is mainly caused by dietary errors, and is most frequent with "bottle babies." Dentition and excessive heat are also factors in its causation. The attack is initiated with restlessness and slight fever and there is sometimes slight colicky pain, and, rarely, nausea. The stools are at first copious and offensive, often show evidences of fermentation, and often contain particles of undigested food. The trouble may be differentiated from cholera infantum by the lack of serious discharges. The prognosis is often bad among the puny children of the poorer classes. The best remedies available are, first a purge, preferably of calcined magnesia, although castor oil is allowable. This should be followed by bismuth subcarbonate or prepared chalk in doses of 2½ drams with ½ grain doses of salol. Opium should not be given until other means to relieve pain have been exhausted.

A spice plaster applied over the epigastium often proves efficacious. Astringents are seldom indicated. The regulation of the diet is of the utmost importance, and all food that is given should be much diluted. Possibly the best food would be thoroughly boiled milk (not pasteurized), diluted with either lime water or vichy. Give boiled water, afterward cooled to a suitable temperature, but give of both foods and liquids in rather scanty measure. In all infants wrap the body in flannels warmed by dry heat, and see that the room air is kept fresh. If the child is seen and treatment begins before the stage of collapse, advise taking it in the open air carefully wrapped up. Do not sanction too much nursing and holding on the lap, and do not allow natural sleep to be interrupted. The fever that is sometimes observed does not need direct treatment, but will subside with the diarrhea.

When the trouble is once under control care must be taken that matters do not swing too much the other way. It is imperative that the child be kept under observation for some time in order that constipation be not established. It would be well to follow up the general treatment after convalescence by small doses of calcined magnesia given twice a week.

Where it is possible, see that hygienic conditions are established. If the child has been living on some "food," examine into the mother's way of preparing it. If this has been correctly done do not hesitate to order another kind of food, since the first might cause a recurrence of the trouble, adding extraordinarily to the gravity of the prognosis.

Cholera Infantum.—Cholera infantum is a variety of acute catarrhal enteritis of intense severity, corresponding in symptoms and course to cholera morbus in the adult, but much more liable to a fatal termination. No specific cause has ever

been found for the disorder, but modern writers ascribe it to the irritating effect of toxins generated in the decomposition and fermentation of food, since the history of almost every case discloses some error in diet.

Dentition and weather act as predisposing causes, and it also frequently develops from a mere dyspeptic diarrhea or from an attack of entero-colitis. It is less frequent than some of the other intestinal disorders, Holt claiming that it constitutes not more than two or three per cent. of the summer complaints of children.

The disease is characterized by its copious serous stools, which become ultimately almost like water. They are usually ejected with great force, and this is an important diagnostic point. There is a certain rigidity of the limbs, which may be either drawn up or extended. The fever is decided, sometimes reaching 107°, but averaging 105°. The feebleness and frequency of the pulse are noticeable, and so also is the unusual restlessness.

There is often a cool feeling to the skin, even when the temperature is ranging very high, and for this reason it is well to take the temperature *per rectum*. Occasionally there are intercurrent convulsions, and sometimes all the symptoms attributed to water on the brain are noticed. Sometimes there is torpor and semi-consciousness, with the Cheyne-Stokes respiration.

Intense thirst is always present, and at first the tongue is coated, although it later becomes dry and red. Emaciation is rapid. Simultaneously with the purging is apt to come vomiting, at first greenish from the presence of bile, but later of a serious character. The urine diminishes in quantity, and the abdomen becomes collapsed.

The disease may prove fatal in from one to four days.

The symptoms must be met with the utmost promptness. Opiates are indispensable, according to the best authorities, even morphine hypodermically being permissible if used with great caution in doses of about 1-100 of a grain, associated with 1-500 grain of atropin. Laudanum or the deodorized tincture of opium, in doses of from two to four drops, may be given in starch-water as a rectal injection.

Tyson recommends small doses of Dover's powders, about 1-10 of a grain, in combination with the sub-carbonate of bismuth, in doses of about two grains. He also thinks that preparations of the oxid of silver are sometimes of value, but advocates combining them with opium in the dosage of 1-12 grain of the silver and 1-24 grain of opium.

Leading authorities advocate the use of a mild purgative to empty the intestinal tract, and recommend lavage of the stomach where vomiting is persistent. The colon may also be flushed to advantage.

Among the advocates of enteroclysis, Dr. Thiercelin is prominent. He believes that it is indicated in cases of obstruction

of the bowels and in cases in which fermenting materials have been retained in the intestine, whether the disorder be acute or chronic. By this means the fermenting material is removed and the toxins washed out from the bowel. If fever accompanies the infection, cold water may be used, in so large quantity as one or two quarts. A fall of temperature of from 2° to 3° will often follow their use.

Hyperpyrexia is one of the greatest dangers, and this is best combated by hydrotherapy. Ice-bags should be placed to the head, and ice-water injections *per rectum* used. Whenever the temperature rises to an alarming point, the child should be placed in a bath at about 80°, rapidly reduced to 70°. If this cannot be done, the patient should be wrapped in sheets wrung out of cold water. Do not be afraid of being too radical. Sponging is a most inefficacious substitute for these measures.

Since there is so great abstraction of fluid from the system by vomiting and purging, as shown by the intense thirst of the sufferer, it is necessary to supply the losses. There is little use to attempt to give liquid by either mouth or rectum, since it will be rejected by either avenue. Anders advises an injection into the cellular tissues of the buttocks, back or thighs, of a normal saline solution, and says that a pint can be used to advantage every twenty-four hours, while in especially severe cases more may be used.

Drs. M. Barbier and M. Deroyer say that the indications for the use of sterilized normal saline injections are as follows:

1. In acute infection enteritis with low temperature yet without excessive diarrhea.

2. In chronic enteritis which prevents the characteristic of low temperature with progressive weakness.

They do not think the injections are indicated in febrile forms in which it is not necessary to increase the temperature or accelerate the pulse. They are only called for where, during the course of such febrile diarrhea, a period of low temperature or collapse occurs.

In collapse substitute the hot bath for the cold.

Waugh champions the use of the two following prescriptions:

In early stages.

℞ Sodii carb.
Sodii sulfocarbolat.....aa gr xxx
Vini ipecac .....dr. j
Tr. castor .....dr. ij
Tr. hydrastis.....dr. iv
Ar. syr. rhei .....q. s. ad. oz. iv
Sig.—Teaspoonful every two to four hrs.

In the dysenteric stage.

℞ Hydrarg. chlor. mite..... .....gr. $\frac{1}{20}$
Ipecac ....gr. $\frac{1}{20}$
Testa preparat.....gr. j
Sig.—Give every two hours until the stools improve.

Bartholow suggests Fowler's solution, ⅛ to ¼ drop with ½ to 1 drop of laudanum, for mucous stools streaked with blood. He also recommends ipecac for greenish stools with blood and mucus, and gives a teaspoonful of the spirit of camphor in four ounces of milk as a stimulant. For diarrhea continuing after the reaction is established, he gives zinc oxid, bismuth and pepsin for the stomach, and copper sulphate for the bowels. If there is nervous irritation or cerebral congestion he prescribes potassium bromid.

Brunton favors carbolic acid and bismuth, and E. Smith pronounces a morphin hypodermic of from one-eightieth to one-thirtieth grain, with five drops of ether, the best treatment.

M. L. Brown has used potassium bromid with great satisfaction in this disease, and considers the drug a specific or physiologic antidote to the toxins that operate as a cause.

Other authorities advocate the use of copper, arsenite, salol, resorcin, and the naphthols.

Acute Entero-colitis.—This is an inflammatory process of the ileum and colon, of a greater severity than that of dyspeptic enteritis, and chiefly affects the lymph follicles. It is a disease of the hot months and of teething, although not strictly confined to the former, and is produced by the same causes operative for dyspeptic diarrhea.

Acute entero-colitis has a temperature between that of dyspeptic diarrhea and cholera infantum, and is characterized by the presence of quantities of mucus in the stools, and by absence of vomiting, of colliquative diarrhea, and of collapse.

The prognosis is doubtful, much depending upon the strength of the child and upon whether the surroundings be hygienic.

Treatment should embrace the general dietetic and hygienic precautions advocated for the other forms of intestinal inflammation. Anodynes are necessary. The rectum should be chiefly used for the administration of drugs, particularly for opium when used.

Tyson prescribes solutions of nitrate of silver, one grain to the ounce, or tannic acid, five grains to the ounce, to be given as rectal injections. The mouth should be examined and the gums lanced so often as may be necessary for the coming teeth.

It should be enjoined upon the doctor that he carefully differentiate the form of disease, since the treatment varies in the different cases. Not all cases of infantile summer diarrhea are cholera infantum, and the treatment for cholera infantum would be far from apposite for diarrhea of the acute dyspeptic type. The differential diagnosis is clear and should be closely made.

It is difficult to secure the retention of the stimulants which are so necessary to tide over the period of collapse. Iced champagne may be given in small doses, often repeated, and brandy in cool water will be of benefit. If liquids are rejected, do not be discouraged from repeating their administration.

The matter of the microbal origin of infection in the diarrheal diseases of children has been thoroughly investigated by Dr. Charles G. Cumston, who concludes:

1. The bacterium coli communis appears to be the pathogenic agent in the greater number of cases.

2. This organism is frequently associated with the streptococcus pyogenes.

3. The virulence, more considerable than in the intestine of a healthy child, is almost always in direct relation to the condition of the patient at the time the culture is taken, and does not appear proportional to the ulterior gravity of the case.

4. The motility of the bacterium coli is generally proportional to its virulence. The "jumping" movement, nevertheless, does not correspond to an exalted virulence in comparison with the cases in which the motility was very considerable without exhibiting these jumping movements.

5. The virulence of the bacterium coli found in the blood and other organs is identical to that of the bacterium coli taken from the intestine of the same individual.

Cholera Morbus.—This is sometimes called sporadic cholera, and is an acute gastro-intestinal catarrh, characterized by profuse vomiting, purging and painful cramp. The disease is self-limiting, and is characterized by a brief course. The prognosis is generally favorable, although fatal cases sometimes occur in persons suffering from chronic kidney affections or heart disease, or in the very old or very young.

It is supposed to be of microbic origin, although this has not been definitely proved. The "Finkler and Prior" bacillus is found in the discharges with considerable constancy, and this closely resembles the comma bacillus of true cholera. Hence it has by some been considered the exciting cause. Exposure to cold and wet and improper food are often the immediate occasion for the attack.

The onset of the disease is often sudden, beginning with severe vomiting of the last food ingested, then of bile, and lastly of watery fluid. Simultaneously discharges from the bowels will begin, and these will finally assume the "rice water" appearance of true cholera. Following each spasm of vomiting and purging will be severe cramping pains, at first of the abdomen, later extending to the general muscular system, especially to the calves of the legs. This is due to the sudden abstraction of liquids from the system. There is also intense thirst, and generally fever, characterized by a higher internal than external temperature.

Since the symptoms caused by poisoning by arsenic, antimony and toadstools are similar, care must be taken to exclude these. In fact, it has been stated by a high medical authority that three-fourths of the deaths reported as due to cholera morbus are instead cases of arsenical poisoning.

In treatment the diet must be rigorously restricted, predigested foods having the preference when it is necessary to sup-

ply nourishment. Opium is almost essential to the successful treatment, but this is best given hypodermically in the form of its alkaloids. Larger doses than usual should be employed, nothing less than at least ¼ grain being of much use for an adult, and even ½ and ⅝ grains being well borne. It is best to begin with the smaller dose and gradually increase until the maximum is reached. Mustard plasters should be applied over the abdomen until the skin shows redness, and then should be followed by linseed poultices to be worn constantly. Absolute rest should be enjoined. If a cold stage supervenes, use the hot bath.

If the immediate cause is the ingestion of irritating substances, it is sometimes well to clear the intestinal tract by a prompt but mild laxative. For the nausea, thirst and weakness, give brandy sprinkled upon chipped ice. If obtainable, the use of champagne will often bring about the happiest results.

If collapse begins, inject whisky and ether under the skin. The injection of large quantities of water into the bowels is advocated to supply the loss of water from the system. If absorption from the bowel is not sufficiently rapid, the normal saline solution may be injected in amounts varying from one-half pint to one quart per day.

Waugh advocates the administration of five drops of chloroform in a little water every five minutes until the pain is controlled, and says that hot applications to the epigastrium or over the right pneumogastric nerve in the neck are valuable adjuvants. He gives this prescription:

℞ Camphoræ
Chloroformi.....aa. dr. ij
Ol. cajeput.....dr. iv
Etheris
Tr. capsici.....aa. oz. j
M. Sig.—Teaspoonful in very little water every 15 minutes until reaction occurs.

For after treatment he gives:

℞ Bismuthi subnitrat ..... dr. ij
Sodæ sulfocarbol .....gr. xviij
Ar. syr. rhei ....oz. vj
Sig.—Tablespoonful every two hours.

A woolen bandage should be worn after recovery and the after-diet should be particularly bland and unirritating.

Ringer prescribes camphor, gives veratrum album for vomiting and in the earlier stages gives lead acetate.

Da Costa prescribes the usual eliminative and anodyne treatment with the addition of chloral, one part, to five of soap liniment, rubbed on the abdomen for cramps.

Bartholow claims that chloral by enema is the best treatment, but says that carbolic acid with bismuth is very efficient. He gives morphine hypodermically in very full doses and iced brandy for the vomiting.

Other remedies recommended are: Ipecac by Waring (who does not believe in the use of stimulants), and columbo as an anti-emetic by Phillips, who also thinks sumbul and oil of cajeput excellent remedies. For heart failure Phillips gives a mustard emetic.

Hay Fever, "June Cold," or "Rose Cold."—This is a catarrhal inflammation of the upper air-passages, occurring through the summer months, and is associated with asthmatic dyspnea. It is most intractable to medical treatment, and seems little benefited by anything short of change of scene.

Occasionally operative treatment on the nasal cavities, such as correcting deviations, removal of hypertrophic processes by the knife, or actual cautery, have produced total cures. Palliative treatment is most uncertain.

Irrigating the nasal passages with a weak quinin solution has sometimes proved very beneficial. Internally quinin and Fowler's solution seem to give the most beneficial results; but the administration of chloral in small doses (2½ grains), frequently repeated, has many advocates.

Anders has had the happiest results from the use of atropin in small doses, either hypodermically or by the mouth. He gives about the one-tenth of a grain every hour or one three-hundredth of a grain every half-hour during the first few days. He thinks the attack is controlled better by this small dosage than by larger amounts given less frequently.

The above covers the field of the diseases especially likely to be encountered during June, and is a summary of the best thoughts of the leading authors in this country and abroad. Still, it is possible that sometimes cases may occur which are not typical in their course, and yet require immediate attention and the promptest treatment. In such event it is almost always safe to assume that cases of intestinal inflammation are due to the presence of irritating substances, and whether such are merely articles of food or are some specific microbe, it is well to adopt an antiseptic mode of treatment for the general indications, and to prescribe anodynes for the attendant pain. Stimulants are always necessary for symptoms of collapse.—*Medical World.*

XUM

CAUSE AND PREVENTION OF ENTERIC (TYPHOID) FEVER.

BY. J. G. HIRTH, M.D., MILWAUKEE, WIS.

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In order to fully appreciate the important relation that the cause, prevention and effect of typhoid fever bear to the commonwealth, it may be well to consider the prevalence and death rate of this disease at two different periods of time; and, for convenience of comparison, let me call your attention to the annual report of our American Health Bureau statistics relative thereto, for the years 1880 and that through which we have just passed—1895.

1880 Census.—In the census of 1880, there were reported 22,854 deaths from typhoid, to which at least 40 per cent. (9,141) should be added for inadequacy of reports, making a total of 31,995 deaths so reported. It is only just in this connection to note that this same report gives 20,231 deaths as due to malaria, and 12,640 deaths due to enteritis, making 32,871 deaths from both, to which should be added 40 per cent. of deaths reported, in order to approximate the actual number of deaths from these two causes, making 32,871; 40 per cent. of 32,871 =46,019 deaths, half of which (23,009) may be justly attributed to typhoid, making (31,995+23,009) 55,004 deaths from this one cause alone, which is a very conservative estimate.

1895 Census.—As regards the number of deaths from this one cause in the year just ended, we find that there are no fewer than 45,000 deaths reported from typhoid, to which should be added 30,000 estimated from previous reports resulting from typhoid, but credited to malaria and enteric disorders, making a very conservative estimate of 75,000 deaths from typhoid alone during the past year.

Monetary Consideration.—As regards this, we are safe to say that each life is worth $1,000, since the minimal cost of raising a child to the age of self-support is at least $1,000, which, however, is a low estimate. Since the vast majority of cases occur between the ages of 15 and 30, we may justly regard each loss of life thus sustained at $1,000, making a loss of $75,000,000 per annum. There are at least ten persons ill for every one that dies, so that the number of sick persons is 750,000; and with an average length of illness of four weeks this would make 21,000,000 days lost; each person must have an attendant, so multiply by two, making 42,000,000 days lost to to the State, each day of which is worth fifty cents, making a loss of $21,000,000; and to this add $1,000 for personal value of each death lost to the State, making $21,000,000+ $75,000,000, and we have $96,000,000 paid by the State as a tribute to criminal ignorance, carelessness and so forth, regarding this disease during the past year; and by the same

process of reasoning, $70,000,000 for the year 1880, thus showing that the United States has done absolutely nothing to prevent the spread of typhoid fever.

Cause.—Notwithstanding the fact that a number of writers assume that the Eberth-Gaffky bacillus (1880) or Koch-Eberth bacillus is the specific germ of typhoid fever, among whom may be mentioned Osler, Wood, Fitz and Pepper among our American authors, aside from any German or English authorities, we must not fail to note that the four rules of Koch, particularly the crucial test of producing the disease in animal organisms by inoculation of a pure culture of the Eberth-Gaffky bacillus, has failed to produce the characteristic lesion.

Koch's Rules Not Complied With.—In addition to the fact that the four rules of Koch have not been complied with, we have much evidence that the essential lesion of so-called typhoid fever may be produced in animals by a number of micro-organisms other than the Eberth-Gaffky bacillus (Vaughan's "Leucomaines, Toxins and Antitoxins": Flugge and Vaughan); and pathologists have pretty generally agreed that the pathological findings of autopsies during the first few days of the so-called typhoid may differ both in lesion and bacteriological findings.

In 1890 Vaughan reported the isolation from water, supposed to have caused typhoid fever, a number of intoxicogenic germs, any of which proved noxious to rats, guinea pigs and dogs. The chemical poisons of two of these have been studied, and upon white rats these poisons produce symptoms which are identical with those which follow inoculation with living germs, and upon guinea pigs these chemical poisons proved fatal within twelve hours, with circulatory apparatus, kidneys, liver and spleen remaining sterile.

With Vaughan we have Klein, both of whom fail to agree that the Eberth-Gaffky bacillus is the sole cause of so-called typhoid fever, the former claiming that the Eberth-Gaffky bacillus as found in the spleen after death is an involution form of any one of a number of germs which are found in certain waters. (Vaughan's "Leucomaines, Toxins and Antitoxins," p. 208.)

Varying Forms.—In connection with this it may be well to note that Babes, in calling attention to the uncertainty of recognizing the bacillus of typhoid outside the body, has reported that he has distinguished nineteen different varieties of typhoid bacillus found in the bodies of typhoid autopsies. (*Zeitschrift fur Hygiene, Band* 9, p. 2.) Casedebat (*Annales de l'Institute Pasteur*, 1890, No. 10) has accurately described three different kinds of bacilli very much resembling typhoid, *e. g.*, bacilli found in Marseilles drinking water.

Infection through connection with typhoid patients is no more an open question. During the years 1861 to 1870 there were treated at the General Fever Hospital in London 3,555 cases of enteric fever, along with 5,144 patients not suffering

from any specific fever, with the result that not one of the latter or the nurses contracted the disease. Dr. Gayler, in editing the third edition of the esteemed work of Murchison, remarks that subsequent experience down to 1882 of the London Fever Hospital is in complete accord with the above report. (*Enclycopædia of Hygiene*, Stevens and Murphy, Vol. II., p. 319.) In view of the above, and, indeed, I might cite innumerable cases, there can be no question but that enteric fever is not to be classed with the infectious diseases.

Specificity.—The fact that it is not at all infectious directly shows quite conclusively that the contagion is not a specific virus, and, furthermore, the virus contained in the excreta of patients suffering with the disease seems first to have to go through a period of incubation before it becomes active in infecting others with the disease, this period of incubation or evolution varying from three weeks to several months.

In view of the foregoing facts I do not believe that, after a careful study of the many various types of the so-called typhoid, taken in connection with the very meager specific bacterial evidence that we have thereto, especially since the germ is not invariably present, and since the bacterium coli commune of Escherich, which is a microbe present in the normal contents of the large intestines of the new-born and adult, being so similar in morphological, cultural and physiological respects to the Eberth-Gaffky bacilli that many observers cannot distinguish one from the other (Congress of Hygiene, 1891, Roux, Arloing and Rodet), we are justified in assuming that the varied class of symptoms, characteristically described by our authors as typhoid fever, are not due to one specific germ, but that it should be regarded as a mixed infection with one or more of several germs varyiug in degrees of specificity, acting as causal agents in producing this widely varying enteric disorder. If due to one germ, it must be one having a highly oscillating degree of virulency, and, theoretically, I think we are justified in assuming that the bacillus coli commune of Escherich when crossed with one or more of those germs found in polluted drinking water, is changed to a virulent germ, which elaborates a chemical poison (Toxalbumin) by feeding upon (*a*) the proteid present in the alimentary tract, thus serving to produce our mild forms of typhoid and so-called gastric fevers; (*b*) or when there is a high degree of susceptibility on the part of the patient or lessened constitutional resistance, the lymphoid tissue is the next area affected, Peyerian patches, mesenteric glands and spleen, as they are the points of least resistance, being the great cisterns of our filtered blood plasma, and a good nutrient media, thus serving to produce the varying forms of typhoid and kindred enteric disorders. "It has been shown by Roux and Yersen that the virulence of the pseudo-diphtheria bacillus can be raised by cultivating the bacillus with the streptococcus on a suitable nutrient material, or by passing through a series of animal

organisms, with proper conditions of susceptibility, and so forth, that a virulence one hundred times greater in potency can thus be obtained." ("Diphtheria and the Use of Antitoxin in its Treatment and Prevention," by G. J. Hirth, *Milwaukee Medical Journal*, Vol. IV., No. 12, p. 398.) Here are two facts which may be influencing factors in the above, and may explain the varying gravity which we have all observed in typhoid.

General Influencing Causes.—General factors influencing the production of the virus of the disease bear an all-important relation to etiology, as also prevention, and we find that organic contamination, either vegetable or animal, of our natural waters, bears an important relation to the propagation or evolution of that class of germs commonly associated with enteric fever; and, in consequence, we find it most prevalent during that period of the year when the organic contamination of our water supplies, wells, cisterns and river waters, is at its height—August, September, October and November in the temperate zones. And, on the contrary, when Nature's process of purification of our natural waters is at its height, we find it the least prevalent—winter, spring and early summer, though in thickly populated areas with defective drainage and sewage, it may be constantly present.

Another fact that organic contamination of our water supplies, either animal or vegetable, serves as the primitive predisposing factor in etiology, is shown that it prevails in India in its most virulent form during March, April and May, and during other seasons it is absent to the greatest extent, since in this area vegetable and organic contamination are at their zenith during February, March, April and May, thus giving time for the propagation of that class of germs associated with our enteric disorders, or probably to the evolution of the so-called Eberth-Gaffky bacillus, or a modified form of the same from other germs.

Way of Entrance.—The poison thus prepared gains access to the human system principally through drinking water directly or through drinking water infecting various foods; *e. g.*, in the recent epidemic at Stamford, Conn., 1895, there occurred 406 cases from April 15 to May 6, most of all having occurred in children and those who used the uncooked milk of a certain dealer, whose source of water for washing cans was a seap-well, located centrally between a number of cesspools and common privy vaults. Other examples of similar cases are on record in great number.

Local Drainage and Sewerage.—Infective drainage and sewerage as a source bears an undisputed relation to the propagation of the virus of enteric disorders, as practical experience shows that cities whose sewage and drainage are poor are invariably hot-beds of typhoid, even when the water dristribution is the very best in character; *e. g.*, the great hot-bed center for typhoid was at one time Munich, Bavaria, whose mortality from

1843 to 1849 was as high as 25 per cent. The drinking water at that time was gotten from wells in and around houses; waste materials of all kinds was collected in cellars; sewage was put in in 1860 with but little avail, and in 1868, pure water was piped many miles from springs and clear lakes, and to-day the average annual deaths were from 5 to 8 for 360,000 people, and these are imported cases. (Von Siemssen.) It is useless to say that with our modern improved plumbing that it is impossible for sewage, at its beginning, to infect a habitation unless there be a defect in same; at all times it is practically impossible to so construct a sewer, cesspool, privy vault, cistern or well that the contents of one will not be influenced by the other if in close proximity.

Irrespective of its source, a water which is a natural water, and taken from a river, unless it be from a mountainous district, is invariably unfit for water supply, owing to its contamination with vegetable organic matter; and, moreover, even though it be a still body of clear lake water, the source of water supply should never be taken from a point in close proximity to the entrance of sewers, or an area influenced through same. *E. g.*, Chicago has about twenty-four public sewers flowing into the lake, with innumerable private sewers, the result of which will invariably be either a direct contamination of the lake water with the virus of our enteric disorders or the overloading of the water with organic contamination, which serves as a culture medium for the same virus, either of which, or probably both, will serve as a source of infection, if the water is taken within an area so influenced, which doubtless comes within the limits of her present water supply, since she annually shows a high mortality, having reported 560 deaths during the year through which we have just passed, 1895, from this one cause alone. Again, Milwaukee furnished, we are happy to say, an admirable example of this great influence in having almost entirely stamped out this dreaded disease not by changing the natural source from which the water is taken, but by changing the location of the source from which the water was taken, thus eradicating the two above spoken of causes. The highly disastrous epidemic which prevailed in Duluth only a few years ago furnished another example, having reported 153 deaths in 1895. Hamburg, Germany, furnishes a most thorough practical application, in that even though the system of drainage and sewage is perfect, the water supply may be the only source of infection, and since their recent new system of filtration, still taking it from the same source, the mortality from this cause is practically *nil*.

Not only is it true that our public water supplies may become contaminated by sewage or even vegetable contamination, either constant or periodically, but there is no question to the mind of every rural practitioner but that these same causes which are acting in our cities are very frequently present

and have their origin in farming communities, and that unclean barnyards, privy vaults, and especially water taken from streams collected from the vegetable areas of our alluvial soils, either of which or all may serve as foci of infection to our wells, poorly built cisterns and creeks, thus serving as a source of infection for our cases, having their origin *de novo* and in consequence a tributary source of infection for our larger bodies of natutal waters, our great rivers, which serve as a great sewer and, at the same time, water supply for nearly all cities located on their banks.

In connection herewith, my personal experience has furnished me ample data to prove the correctness of the foregoing statement, a short report of which may be of interest. Quincy, Illinois, a town of about 30,000 inhabitants, located high on the banks of the Mississippi, has constantly had much more than her share of typhoid deaths, ranging at about 1 per 1,000 population, according to her last annual reports; her system of sewage and drainage is certainly above par, and yet she invariably has a high autumnal mortality from typhoid with slight degrees of variation. The question may with justice be asked, Whence this source of infection? This can only be answered indirectly by saying that her source of water supply is the Mississippi, with no attempt whatever at filtration. Those of you who are familiar with her topographical geography know that on either side there is a wide belt of alluvial swamp soil, backed by high bluffs on either side, but particularly on the Illinois side. In this connection it may be said that during the autumn months this low area is most invariably the victim of a virulent malarial epidemic, though occasionally when the fall is dry the malaria may be entirely absent.

This Illinois bluff is backed by a rich, highland farming community; in this particular area, which is from three to ten miles north of the city, the surface water is collected by innumerable creeks which were dry during the most of July and August, but in the fall again became running streams. So constant was the prevalence of typhoid in one locality in this section during the months of September, October and November, that I have known as many as thirteen cases within an area of two square miles to have occurred in one fall, myself being counted among the number. It is of great interest to note in this connection that the victims of these epidemics were most invariably those who frequented this creek area of woods in pursuit of nuts, game, etc., since most every case was amongst males; thus showing conclusively that these cases had their origin doubtless *de novo* from this creek surface water, which became infected in the way spoken of elsewhere in this paper. The Mississippi river being more or less a collection of such waters, can it be wondered at that Quincy should at this coincident season of the year be the victim of the same allied disorders? I may also add

that since this time (about twelve years ago), the borderland timber of this creek area, from one to two miles in width, has been cut down and the land put in cultivation, which has been the cause of rendering this small tributary quite extinct. Last fall when I visited this section I found that typhoid had entirely died out, and that the populace of this same area were the regular autumnal victims of malaria, which during my residence in this highland section some fifteen years ago was wholly unknown. This also shows that typhoid may arise independent of an antecedent cause, and that antecedent causes of a changeable character change the character of the enteric disorder, and in fact that they are conducive to such changes, seems highly probable; thus again showing that the virus of typhoid fever is not specific in character.

Areas Most Influenced by Typhoid and Enteric Disorders.—Statistically, it may be definitely proven that the cities located on the banks of our lowland rivers have a much higher death rate from typhoid and enteric disorders than those located inland or at the borders of our great lakes, and it cannot be questioned at this day but that pollution of a water supply by means of sewers—and indeed our great bodies of waters as regards rivers, come under this class—is responsible for the great majority of enteric disorders, including cholera, typhoid fever, dysentery, enteric diarrheal diseases and malarial fever.

Prevention.—Since there are no factors in the cause of typhoid so certainly established as the propagation and conveyance of the virus or antecedent by infected water, or by food contamination with infected water, by any of the many various ways, it necessarily follows that this source of contagion should receive the greatest amount of attention.

Hamburg's Experience.—A lesson of intense practical application may be learned from the experience which Hamburg, Germany, has undergone during the past several years. In the summer and fall of 1891 it was my privilege to observe practically, at the Hamberg Eppendorf Allegemeinen Krankenhaus —of about 2,300 beds—a large number of cases and autopsies of typhoid; in fact, several pavilions were given up to the care of these patients during the fall months, with a greater or less number during the remainder of the year. It may justly be stated that Hamburg's mortality from typhoid up until this time was almost a constant factor with only slight degrees of variation. In the fall of 1892 Hamburg became the victim of the cholera epidemic, a fact fresh in the minds of you all. Russian trading vessels from infected ports, unloading at the wharf, dumped their filth into the Elbe, which had never been anything more or less than a first-class sewer, notwithstanding the fact that the public water supply, without any attempt at filtration, was taken only a few blocks from the entrance of the public sewers. An immediate investigation into the prevailing sanitary conditions was of paramount necessity, as the number of deaths had increased within nine

days to 484. The committee of investigation, consisting of Koch, the Public Board of Health Commissioner of Hamburg, and, I think, Pettenkofer, or Veit, reported that the existing source of infection was largely the public water supply; in consequence the water supply was cut off, special literature as regards the cooking of all foods and rules of hygiene being freely distributed; the result was that in twenty-eight days from the time that the first infection had reached its height (which was nine days after the first case was reported, the 30th day of August, 1892, having 1,081 cases reported with 484 deaths) it had almost entirely ceased.

In consequence of a specific sepsis (cholera) of the old system, which consisted of three great mud basins and sewers, it became necessary to construct a new system of water purification. That known as the solid sand-bath system, having its origin in England, was given favor, and within twelve months, by night and day work, her present system was completed. Some two years ago, while renewing my old associations at Hamburg, I happily found that such a thing as a typhoid patient was looked upon as a relic for purpose of study, and at that time when I called there was not a single case being cared for at the General Hospital.

Description of Sand-Bath Filter.—Even though the construction of this filter is known to many of you, a brief sketch of the mechanical structure may not be out of place. A large basin is dug into the surface of the earth, from one to four acres in area, about ten or twelve feet deep, bricked and cemented at bottom and sides, the latter being angular to about 45 degrees. A large drain is laid at the base by having prepared two cross trenches having one common outlet and being covered in entirely with large plates of stone, loosely placed. The base of the cement basin floor is covered with large boulder stones, successively graduated layers until small pebbles are reached (the depth being about four feet); on top of these very small pebbles, sand, which has been heated to red heat or or washed with sterilized water, is placed to a depth of three or four feet, and when packed is ready for use. These basins are flooded from beneath upward until the water reaches a level of three or four feet above the level of the sand, and the difference between the height of the level and the exit of the water will determine the rapidity of filtration, which is working most efficiently when filtering at the rate of from three to five inches per hour.

Advantages of this Filter.—(*a*) It removes all suspended matter present and at the same time organic matter plus germs which have become entangled in the upper film and layer of sands, which in time clogs the filter, and when the filter is cleaned, they are thus removed.

(*b*) It must not only be understood that sand acts best as a mechanical strainer, but physics has shown that finely divided solid substances such as sand exert the power of condensing

and collecting oxygen, which serves the purpose of oxidizing organic matter held in solution, and possibly also the germs, since they are our simplest organic forms of life, endowed with little resistance. (The Eberth-Gaffky bacillus and bacilli closely allied are pretty generally accepted to be devoid of sporulation.) They also lose their integrity and diappear from water combined with soprophytic bacteria (Tysen), though in sterilized water they remain vital, according to Klemperer, for three months or more, are not destroyed by freezing, hence the ice supply is a factor which may account for sporadic cases or even epidemics, but to my mind this is not likely to occur, because at the time the ice is being frozen, Nature's processes of purification are at their height; again it may be true that even after a pure ice is cut it may be contaminated by water stirred up at the sides of a polluted stream. Please do not understand from what has been said that water polluted with sewage or vegetable contamination (albuminoid ammonia) is dangerous to life *per se*, but it is an indicator that such water will serve as a propagating culture medium and carrier for a variety of germs, including Koch's cholera bacillus, malaria bacillus, Eberth-Gaffky bacillus, the varying forms of bacteria which produce our summer diarrheas (Vaughan, Booker and Escherich). I do not think that diphtheria bacilli should be classed with this number, for clinical observations do not associate its etiology with polluted water supplies, but, like unto influenza, with poor ventilation.

Organic Contamination Not Noxious Per Se.—As regards organic contamination, *per se*, not being noxious to life, Emmerich, of Munich, has given the subject a practical test. For fourteen days he drank daily one liter of very filthy water, both chemically and physically impure (almost pure sewerage), with no deleterious effects; control experiments on others gave similar results; in fact, he claims that it served as a therapeutic agent in curing the gastric catarrh from which he was suffering at the time. (Wolffugel: "Wasserversorging," Pettenkofer, and Siemssen's "Handbuch der Hygiene," 1st abth. 2 heft, p. 97.) However this may be, our inborn instincts of sanitary conscience and cleanliness make it imperative that even though a pathogenic-germ-free sewerage should be taken with impunity, it should not be taken; our finer instincts demanding purity of food and water, which are rules dictated by Hippocrates 365 years before Christ.

Again, Berlin may be cited as a city whose mortality from typhoid fever is almost nil. I have witnessed from three to seven post-mortems daily for two semesters, taken from the Charite Hospital, and never saw a post-mortem of typhoid fever. During this same time I took a course in physical diagnosis at the clinic of Professor Paul Guttmann, at the Moabet General Hospital—about 1,700 beds—and during the entire time we did not have one case for clinical teaching. It is needless to say that hygienically, Berlin is the cleanest city in the

world, as also to say that she has all water under bacteriological control, most modern sand filters, which have been recently put in at some distance up the Spree river (ten miles) at Muggle See, at the expense of the old sand-bath process which was condemned for the reason that it took its water from a point too near the city.

Conclusions.—In view of the foregoing we may conclude: (1) Typhoid fever occurs through taking into the body virus mixed in character, or, if specific, having widely oscillating degrees of virulency, which practically nullifies its specificity. (2) The virus or antecedent causes find access to the body always through the alimentary tract through the agency of water either directly or indirectly by drinking or eating. (3) That bad drainage, sewerage and vegetable contamination are the prime factors influencing water contamination. (4) That the portion of our large bodies of still waters (lakes) near the entrance of sewers, and our lowland rivers are so affected. (5) That water so infected or prepared for infection should never be used as a water supply unless (*a*) boiled or (*b*) filtered. (6) That when this process (sand filtration) is not practical it should only be taken from springs, subterranean streams, clear lakes or rivers not influenced by organic contamination. (7) That the filter having the requisite degree of practical efficiency (and the only adequate process of purification until the present), is the modern sand-bath filter, properly constructed and manipulated. (8) That all the rules of hygiene pertaining to the sick-room should be rigidly observed, and that both secretions and excretions of those ill of the disease should be disinfected by carbolic acid. (9) That a highland farming community and rural districts are in no wise exempt from this disease, and usually serve as the starting points for cases having their origin *de novo*. (10) And, lastly, that even though it may be necessary to wait until the future will have become the present in order to settle the question of specificity, the factors influencing the cause and prevention will always remain the same.—*Medical Times.*

A FEW SUGGESTIONS ON THE PREVENTION OF TUBERCULOSIS.*

BY JAMES A. BURROUGHS, M.D., ASHEVILLE, N. C.

There has been so much written on the subject of tuberculosis since Professor Koch in 1882 first discovered the germ that causes consumption, we hesitate in opening any phase of the subject, yet we are excusable when we state, from statistics, that this is a disease that causes the death of every seventh human being on the globe, and further, if proper precautions and sanitary regulations were observed, in short time the number of cases could be greatly reduced and longevity raised several years.

All admit that tuberculosis is an infectious and contagious disease, and, at the same time, must admit that all contagious and infectious diseases could be prevented if we only knew what to do.

Located as I am, handling hundreds of these cases from every quarter of the United States and Canada, it is appalling to note the lack of knowledge of the contagiousness of tuberculosis and the great danger the infected are to others. It is no infrequent occurrence for a tubercular mother to expect to keep a baby and a few small children in her bedroom, as no protest has been entered against the practice by the family physician at home.

As soon as the diagnosis of tuberculosis is made, first of all, without an exception, it should be communicated to the patient, and he should be informed of all known facts on the contagiousness of the disease, so that he would not be a source of danger to others or reinfect himself. The sputa is the principal means by which contagion is spread. All the sputa should be collected in a sanitary hand cuspidor and the papers removed at least twice daily and exposed to a strong solution of bichloride of mercury, or cremated; see to the thorough destruction of these papers of sputa; do not allow them to be thrown into the sink to infect people or cattle miles away; do not permit a blaze to consume the dry portions of paper, leaving the sputa with its millions of germs unmolested to dry and do their deadly work; make the patient understand that it is the sputa you wish to have thoroughly burned.

Patients in the first stage, in fact all stages, of the disease do a greater portion of their coughing and expectorating on rising in the morning, and it incurs no hardship to demand this duty of them, in which they soon acquiesce.

About two years ago the little city of Asheville, N. C., passed an anti-expectoration ordinance (which was, so far as I know, the first ordinance of the kind in this country), since which time one hundred and seventeen cities and towns in the United

[*Read before the North Carolina Medical Society, May, 1898.

States have passed a similar law. It has proven a great educational feature with the masses, and practically put a stop to the dangerous insanitary nuisance of spitting upon the sidewalks, in the street-cars and public buildings, in the city where the anti-expectoration ordinance was originated. All cities that have passed this ordinance have experienced trouble in enforcing a strict letter of the law. Millionaires have instituted suits for damages against corporations because of reproof and ejectment for vulgarly violating this ordinance, but this has only had a good, wholesome, and stimulating effect upon the people; it has put them to thinking.

The poor consumptive of to-day, who is properly informed, is careful with his sputa; he feels that indifference on this point may be death to others, cause him litigation, or hasten a crisis in his own case.

It is an admitted fact that no children are born with tuberculosis, yet they do inherit that peculiar lymphatic, anemic, poorly nourished constitution which gives them but little or no resistance when exposed. To permit these unfortunate children to reside in tubercular homes, with like habits and environments as their infected parents or relatives, is nothing short of criminal negligence. Such children should be removed to an altitude of dry, rarefied atmosphere loaded with ozone and perpetual sunshine. In conducting them into puberty and settled life, short school hours should be provided, with much time spent in the open air. This class should be induced and taught the necessity of eating such food as will make blood and build up good, healthy tissue cells, so as to give them all possible means of resisting any invasion of this dreaded enemy.

I have at this time under my supervision many individuals and families of a tubercular diathesis who have undoubtedly escaped the disease by the above suggestions. At this moment I call to mind three younger members of a New Jersey family of ten, all of whom had died in quick succession with tuberculosis. These three located in Western North Carolina eight years ago, and no symptoms of tuberculosis have developed in either of them; the younger is now two years older than any one of the brothers or sisters who died in New Jersey.

A complete change of climate in all tubercular families is wise sanitary advice, and, to repeat, that change should be to a higher altitude where the air contains a quantity of ozone and perpetual sunshine, and is freer from gases and bacteria. It is judicious to note here that ozone and sunshine are deadly to tubercular bacilli, and to this fact is due immunization of the points like the City of Mexico, Denver and Asheville, that have been for years resorts for consumptives.

It is possible for the well-to-do class to avail themselves of these sanitary precautions, but it is quite different with those less fortunate. What we shall do with our tubercular poor is a big question, and one which demands the most serious and careful consideration by every State and municipal board of

Health. To diagnose these cases and report them to the local boards and have them registered, does but little good beyond the general advice given, and swelling our statistics. What that class needs is some provision by State or city where they could be placed under the best sanitary regulations, so as to protect an innocent community, and, at the same time, offer them the best chance for an arrest or cure. It is more necessary that this class should have official care, as they are largely ignorant and careless, and it is principally these people who lounge around lawns and suburban fields scattering millions of germs upon the grass which infect fowls, stock and milk.

England has greatly reduced her death rate of pulmonary tuberculosis by providing hospitals for her poor. England has eighteen tubercular hospitals, with the capacity of seven thousand beds.

With the exception of the States of New York and Massachusetts, there has been no attempt at isolation of the bulk and file of tuberculosis in this country, so far as I know.

It is gratifying to note the good being accomplished in veterinary surgery under the various State boards of health in pointing out infected herds of cattle and disposing of same.

Every large collection of people should have a competent bacteriologist to keep a watch over its meat and milk supply, with an especial view to prevent tubercular infection. This official would doubtless save the corporation employing him many times his salary, in pauper burial expenses, to say nothing of the protection to human life.

Malnutrition, insufficient food of a poor quality, and overcrowding of tenements and public buildings are subjects that are constantly confronting health boards and individual practitioners; each is a subject within itself.

Wish to say something in behalf of our overcrowded school buildings and orphan homes. A glance at the pale anemic faces in a public schoolroom would convince the most skeptical of the vicious results of improper ventilation. That many children become infected in the vitiated atmosphere of the schoolroom is a painful fact that is only too often brought to our notice.

If mountain air, containing, as it does, large quantities of ozone, is beneficial, and often curative, in tuberculosis, why not bring a similar condition to bear in the insanitary schoolroom or other places where there is assembled a large and permanent collection of people?

It is a somewhat remarkable fact that ozone, which can be generated by means of an electric current with comparative economy and cheapness, has not been put to more extensive use for sanitary and prophylactic purposes. The extraordinary germicidal power of ozone has long been known and recognized by the scientific medical world; the ozonizing of the schoolroom and public building is a matter of minor mechanics. An ozone-generating apparatus is not expensive and can be con-

nected with an electric current from street-car wire coming into the building, or with a private dynamo; with the proper apparatus the whole building can be impregnated with this germ-destroying gas.

In any large assemblage of children some one or more have tuberculosis which has not been suspected by teacher, family, or consulting physician. If the ozonizing of school buildings were put into practice, that source of tuberculosis, with all other contagious and infectious diseases, would be practically cut off, and the children would have a nice, sweet, clean, non-germ-laden fluid to breathe. This idea adopted in the school, there would be fewer constitutions prepared for tubercular infection.

In my judgment, no hospital or sanatorium, either private or public, should be kept open unless there was ample provision for ozonizing the entire building from cellar to garret. The statistics of mortality from tuberculosis in insane asylums and prisons of the different States, is sufficient to suggest a consideration of the above idea; all must acknowledge that something is wrong when strong men in a few months after incarceration become tubercular. With an ample ozonizing apparatus placed in these prisons and asylums, there would be marked diminution of tuberculosis.

The ozonizing of all hotels, and especially Pullman cars, is the most rational solution of the danger along that line. Permit me to state that in one of the "babies wards" of the New York Post-Graduate Hospital, where an ozone-generating apparatus is used, contagious diseases are almost a curiosity, whereas in non-ozoned wards quite a number have occurred.

Some ingenious pathologist has stated that the consumptive cadaver contains about eleven million tubercle bacilli. I am not prepared to substantiate or deny the above statement, yet it is quite reasonable to presume that the calculation is approximately correct. We do know that these bacilli will live in the ground for more than a quarter of a century, retaining all the vitality of the same germ that was carelessly deposited in a hotel lobby the day before. Knowing this, it does seem reasonable and practicable, from a prophylactic and sanitary position, that all tubercular dead should be cremated; to bury this class means to infect the soil and contaminate dependent water supplies for man and beast for more than a generation. A concerted action of all the civilized world in cremating its tubercular dead might not have much effect upon this generation, but would lessen the dreaded disease for those who come after us.

There are many points of vital value on the prevention of tuberculosis left out of this little paper which I trust may be brought out in the discussion.

The laity, as well as the profession, is waking up to the contagiousness of this disease, and, in the judgment of some of our best thinkers, there will soon be a pronounced recognizable

reaction in the number of the tubercular; indeed a perceptible reaction has already begun, as is observed from an editorial in the Journal of the American Medical Association of February 26th, 1898, where the statistics from twenty of our principal cities, having a population of seven million and five hundred thousand, have shown a decrease of the tubercular death rate of thirty-three per cent. since 1888, which is tersely ascribed to a more general knowledge of the contagiousness of the disease, better food-supply and more perfect sanitation.

DISCUSSION.

DR. A. A. KENT: I feel like adding more than simple emphasis to the position taken by Dr. Burroughs, for I do wish, gentlemen, to emphasize the importance of preventative measures in tuberculosis. If tuberculosis is a contagious, infectious disease, then it is preventive, and if preventive, it behooves us, as custodians of the public health, to bestir ourselves that something effective may be done. Dr. Koch, some sixteen years ago, demonstrated the fact of the causal relation of the bacillus of tuberculosis to consumption. During these sixteen years of time the most able scientists of the world have been confirming his conclusions. There are some who still doubt, that we must admit, but while we admit it I am frank to say that there being some who have doubts tends to make discoverers more careful, more painstaking in promulgating their discoveries. It stimulates research, but the fact that there are those who doubt does not disprove it, and it stands to-day among the best of the profession a well-admitted fact that consumption is a contagious disease. Then, if contagious, what must we do? Shall we ask the legislature to pass laws? In my opinion we must, but before we can enforce laws we must have the moral support of the public, of the people; we must teach it in season and out of season; we must so teach it and preach it that the people will learn it, and that once having learned it they may put it into practice, for no knowledge is of value that can not be put into practical use. I am glad to be able to say that our highest institutions of learning are already armed and equipped with the proper information on the subject. I have had some little correspondence with our best-equipped institutions, and I find that they are already enforcing proper sanitary regulations in regard to this disease, and I am glad that it is a fact. These are the fountains, the sources of knowledge, and from them it will be spread abroad among the people. But, gentlemen, more may be done, and more may be done quickly. It should be taught in the homes; it should be taught in the common schools; it should be taught in the high schools; it should be taught in the colleges; it should be taught in the hotels and boarding houses; it should be taught in the church and in the State; and we should continue to so teach and so preach it that the people will be ready to join hands with us in the battle against

this arch-enemy of human life. If we once havethe people educated on the subject, we are ready for strict laws and the laws will be enforced. But, gentlemen, it behooves us to teach the people, and when once we have taught them, with willing hands, educated brains and determined minds they will take up the work with us, and in one common cause we can go on to the extermination of this the greatest enemy of human life.

DR. LEWIS: I want to express my gratification at the excellent paper read by Dr, Burroughs, and the no less excellent remarks by Dr. Kent, and I think he sounds the keynote when he speaks of the profession as the custodians of the public health. I don't think anybody can deny that every physician is a health officer morally, whether he is so really or not. It is simply a matter of education. Laws are nothing unless the people are willing to carry them out. There are one or two practical things that I think all of us could carry out without any trouble at all if we would simply give it attention. The ordinance against spitting on the streets of a city or town is very well, and I am mighty glad the laws of our city of Asheville have done that, but you all know, as stated by Dr. Burroughs, that sunshine and ozone are fatal to the life of the tuberculosis bacilli. People spitting on the streets, out in the open air, is not so dangerous as their spitting in the unventilated houses where these bacilli flourish. As illustrating this point, I quote from the last bulletin of the State of Ohio, which is just out, the history of a house in Ohio in which there had been three deaths, evidently contracted from an original case in it. It was a new family who moved into the house, and who had no hereditary predisposition to the disease. Now that is a striking object-lesson, and I am satisfied bears very materially on the question. If the profession insists upon it, and impresses upon their patients the fact that tuberculosis is a contagious disease, and unless they do take the proper precautions they not only cause their own death but the death of those dearer to them than their own lives, I think there would be no difficulty in carrying out the proper precautions. As I intimated, the most important of all is the thorough disinfection of rooms that have been occupied by tuberculosis patients. If we could ever get the sentiment instilled into the minds of the patients in the towns and cities that they would under no circumstances rent a house in which a case of consumption had lived unless that house had been thoroughly disinfected, and an official certificate to that effect presented, I believe it would have a very great effect. If the profession could succeed in poisoning the minds of the patients against the landlords to that extent, and impress upon their patients that in no case should they occupy a house unless that house had been disinfected, I believe public opinion would be built up more rapidly than in any other way I know of. Of course, isolation of tuberculosis patients is desirable. Practically, of course, it can

not be done. You can't take the children away from their parents. The poor you can't manage because they haven't got the money, and as we all know, public sentiment in North Carolina is not ready to make appropriations to take care of consumptives. If the profession can impress upon their patients the fact that tuberculosis is a contagious disease, and above all that absolutely thorough disinfection and ventilation of rooms occupied is necessary, which can be most easily done, I do believe a great deal of good may be accomplished.

DR. J. W. LONG: I would like to say a few words in discussing this paper, but it so fully covers the ground that it has left very little to be said, and I rise simply to endorse what has been said. I think that we cannot speak upon the prevention of tuberculosis too often. Every gentleman who has spoken has emphasized the necessity of educating the public along this line, and the only way we can educate the public is to keep talking about it, and I do not believe we can spend an hour more profitably in any medical meeting than in discussing this question of the prevention and the means of preventing tuberculosis. There are only one or two points that I would call attention to, and one is the practical matter of preventing tuberculosis among physicians themselves. I think possibly, if you will excuse the personal reference, that I inherit a tuberculous tendency from my father, and every time I go to see a tuberculous patient it hangs over me like a terrible nightmare, and I take the precaution after every visit, whenever it is possible for me to do so, to wash my hands and face, because it is by these means that the bacilli are conveyed to the lungs. Now, I think that the very fact that tuberculosis is so mildly infectious constitutes the dangerous element. If we could show to the public that tuberculosis was acutely infectious, as is scarlatina or diphtheria, we might hope in a short time to educate them up to seeing the necessity of instituting measures to prevent it, but it is because it is so mildly infectious that we have such a hard time in educating the public. But returning to the point which I just mentioned, and that is tuberculosis among physicians. We all of us meet doctors occasionally who have tuberculosis—we know of doctors who have died of tuberculosis. The question comes up, how did they contract it? And it is quite possible that they contracted it through contact with tuberculous patients, and I think we might set a good example to the laity by instituting some reform ourselves, and that we should show them that it is important to disinfect ourselves. Now, I have heard physicians talk about disinfection after visiting cases of scarlatina, and yet those very same doctors would go to a case of consumption and never disinfect their hands, or their faces, or their overcoats, and go to another patient (a child it may be) without any disinfection. We can best educate the public by instituting some reform ourselves along this line. I was very much pleased with Dr. Burroughs' paper. It kind of knocked me out

on one thing, though. He said that every sanitarium ought to have an ozonizing apparatus, and I kind of consoled myself by thinking that this might be necessary for the sanitariums in New York or Asheville, but I didn't think it was necessary for the sanitarium at Salisbury. It may be needed in Asheville, the great Mecca for consumptives, but we don't want you to use any ozonizing apparatus on us. I was very much pleased with Dr. Burroughs' paper and feel very much profited by the discussion of it.

DR. LEWIS: Dr. Spencer says that the keeper of the poorhouse or home for the aged and infirm of Caswell county died not quite two years ago of phthisis. No family history whatever. Since that time two children have died. Two remaining children have now a phthisis. The wife has tuberculosis, and two laborers that spent a week in that house have tuberculosis. I asked his advice in regard to the disinfecting of that house, and he gave the advice that the best way was to burn it up. That is really a very striking lesson.

THE FIRST NATHAN LEWIS HATFIELD PRIZE FOR ORIGINAL RESEARCH IN MEDICINE.—The College of Physicians of Philadelphia announces through its committee that the sum of five hundred dollars will be awarded to the author of the best essay in competition for the above prize.

Subject—"A Pathological and Clinical Study of the Thymus Gland and Its Relations."

Essays must be submitted on or before January 1, 1900.

Each essay must be typewritten, designated by a motto or device, and accompanied by a sealed envelope bearing the same motto or device and containing the name and address of the author. No envelope will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays if reclaimed by their respective writers or their agents within one year.

The committee reserve the right not to make an award if no essay submitted is considered worthy of the prize.

The treatment of the subject must, in accordance with the conditions of the trust, embody original observations or researches, or original deductions.

The competition shall be open to members of the medical profession and men of science in the United States.

The original of the successful essay shall become the property of the College of Physicians.

The trustees shall have full control of the publication of the memorial essay. It shall be published in the Transactions of the College, and also when expedient as a separate issue.

Address J. C. WILSON, M.D., Chairman,
College of Physicians,
219 South Thirteenth Street, Philadelphia, Pa.

OBSERVATIONS UPON THE TREATMENT OF SOME CASES OF NEURASTHENIA.*

BY JEROME K. BAUDUY, M.D., LL.D., ST. LOUIS, MO.

Professor Nervous and Mental Diseases, and of Medical Jurisprudence, Missouri Medical College.

That chalybeates, more especially the *organic* salts of iron, constitute an essential indication in the successful treatment of some cases of neurasthenia, especially in the female where functional menstrual derangements exist, is to my mind *an in disputable fact*. They produce conditions oftentimes not attainable by the inorganic preparations, for many reasons which experience and reflection clearly demonstrate.

In a recent clinical study of this affection my conclusion as above stated is fully justified and corroborated by the microscopical blood examinations conducted by my esteemed and skillful friend, Dr. C. Fisch. That cerebro-spinal anæmia is a frequent important concomitant, if not an essential etiological factor of neurasthenia, I hardly think admits of cavil.

The clinical histories of appended cases were compiled by my son, Dr. Keating Bauduy, chief of the Neurological Clinic at St. John's Hospital, under whose direct supervision the investigations were conducted. That the ratio or number of red blood corpuscles and the percentage of hemoglobin were deficient in the normal standard of these cases prior to the treatment *is incontestable*, as shown by the microscope. That several of the cases to be enumerated showed marked improvement even after one or two weeks' treatment is moreover revealed in the same manner, and which for rapidity of effect is quite an exceptional, if not a startling, therapeutic result when compared with some of the prior and more established methods of treatment. That many of these cases presented unmistakable evidence of satisfactory improvement, from both a subjective and objective standpoint, was quite as notable as the permanent character of their general amelioration. That the ordinary tonics had in some instances been administered with nugatory results while pursued along the old lines of authoritative medication seems quite manifest.

My only explanation of the *surprising results* in the cases herein cited, where the usual officinal class of remedies had formerly been ineffectually essayed, was the superinduction, as is so frequently the case, of disturbed digestion and assimilation; results but too familiar and disappointing to professional experience. Aside from the disturbances just mentioned, the development of headache, constipation, etc., frequently obviate their further administration.

When, a few years ago, my attention was called to Gude's preparation of "*Liquor Mangano-Ferri Peptonatus, Gude*" (Pepto-Mangan), so extensively used and highly extolled in Germany,

*Read before the St. Louis Medical Society Saturday Evening, February 5, 1898.

with my usual antipathy for new remedies, I reluctantly gave it a trial, anticipating that I would necessarily have to combat the usual disappointing effects of most of the other preparations of iron. The results, however, were *indeed a surprise to myself*, for the concomitant deranging sequelæ were so slight, that but in very few instances in *my extensive* utilization and experience with this special pharmaceutical preparation was I obliged to discontinue it. My experience having led me to believe that iron and manganese in combination are both indicated in the vast majority of cases of neurasthenia, this particular remedy, *I am now convinced, will prove a great boon both to the patient and the physician.* While it is maintained by some that in the hemoglobin of the red blood corpuscle manganese is present as well as iron, I have for many years procured results with a combination of both not directly obtainable with one alone. We know, however, that manganese gives off oxygen to a greater degree than iron, and it has been argued that for this reason its internal exhibition might correspondingly increase assimilation.

Dr. Fisch's appended microscopical report shows that the increase in the percentage of hemoglobin in many of this series of cases is far in excess of the proportionate increase of the red blood corpuscles. *This fact I deem of greater importance as to the effectiveness of the medicine*, because the count of the blood corpuscles is to a certain extent relative, and the size varies greatly in different cases, and for other reasons the same amount of blood plasma contains different numbers of red cells; hence I would particularly lay stress upon the proportionate increase of the hemoglobin as the more important factor. The *notable* and *astonishing improvement* of these cases when placed upon this preparation led me to their closer scrutiny, as well as microscopic observation. Before concluding, I *wish particularly* to call attention to the fact of the absence of digestive disturbances and necessary consequent interference in the assimilation. All other unpleasant complicating results were notable by their absence. Of course we do not consider the remedy applicable to cases of lithemic neurasthenia, nor in any manner a *specific* in any variety of neurasthenia. In many cases the addition of arsenic and strychnia greatly increases the efficacy of the preparation. I must also take cognizance of the salient fact of the rapidity with which a large number of female neurasthenics under our treatment who have suffered with marked functional menstrual derangements have attained a normal condition under the administration *of this most elegant combination of iron and manganese.*

As it would be tedious and monotonous to present an exhausted citation of multiplicity of a clinical cases, I have confined myself to a recital of a few typical ones:

CLINICAL REPORT.

By KEATING BAUDUY, M.D.

CASE 1.—Mrs. S., aged thirty-two years, mother of three children, came to me in a pitiable mental condition, and had in her arms a nursing hydrocephalic child, five months old. Her mental drepression approached a type of veritable melancholia. My first idea was to advise that the child be weaned, and then place her upon the classical opium treatment for melancholia. This was her third child, and like all mothers, she clung to the life of her unfortunate with characteristic tenderness. Therefore, she bluntly insisted upon my candid opinion as to whether the weaning of the baby might prove fatal. Knowing, as I did, that the life of the child was simply a question of a period of short duration in either case, I so informed her; nevertheless, I insisted that the best hope for her recovery was to wean it. This she refused to do, and after Dr. Fisch had made a blood examination and pronounced her highly anæmic, I reluctantly undertook the case. Aside from her mental depression, physical lassitude and marked pallor, the "casque neurasthenique" symptom was a dominant feature in her case. Any effort to perform her usual household duties produced sensations of cerebral fullness and persistent pain in the vertex. She even confessed that the idea of suicide had of late frequently haunted her. Under the administration of "Pepto-Mangan," with no other treatment, after the short period of fifty-two days she was discharged, fully restored to her normal condition. Microscopic report showed a relative gain in number of red blood corpuscles of 34 per cent.; hemoglobin, 44.5 per cent.

CASE 2.—Mrs. Sim, age twenty-three years, mother of two children, youngest six months and nursing. About the fourth month of her last pregnancy she was troubled with dyspnœa. Gave history of instrumental delivery, followed by puerperal eclampsia. Great loss of blood during birth of child. Two months later abscesses developed in each breast and patient was confined to bed during a period of ten weeks. Case presented typical manifestations of neurasthenia, also characteristic apprehensions, with preternatural emotional mobility. Constant cephalalgia in vertical region, persistent parasthesiæ in extremities, mouth and tongue, were also present. She was intensely pale with every appearance of profound anæmia. Aside from a mild laxative which was given to obviate constipation—an obstinate feature in her case—nothing was administered save "Pepto-Mangan." After a period of treatment of forty-nine days I discharged her, as she evinced none of the symptoms which formerly existed. A notable feature was the corresponding improvement of the child, notwithstanding the fact that I had previously insisted upon its being weaned, which she had nevertheless, contrary to my instruction, continued to nurse. Microscopic report showed a

relative gain: red blood corpuscles, 19 per cent.; hemoglobin, 27 per cent.

CASE 3.—D. G., aged twenty-five years, unmarried. Suffered from nervous headache for past year. Vaso-motor disturbances evidenced by alternate flushings and pallors, heat and cold. Atonic dyspepsia. Irregularity of bowels. Disturbed sleep. Depressed physical condition, correspondingly weak pulse. After taking "Pepto-Mangan" fifty-seven days reported feeling generally improved. Digestion was better, pulse stronger and headaches greatly diminished in intensity. Vaso-motor disturbances disappeared. Microscopic examinations showed a relative gain: red blood corpuscles, 11 per cent.; hemoglobin, 15 per cent.

CASE 4.—Miss S., aged twenty-eight years, presenting many of the well-defined symptoms of neurasthenia, was in a condition of profound mental and physical weakness. The history showed that since our great cyclone of May 27, 1896, she had never been her normal self, and was unable to perform any sustained mental or physical strain. Dating from that episode she had always worried and was constantly the victim of peculiar forebodings. Insomnia and general malaise were cardinal symptoms. My diagnosis was what has been termed "cyclone neurosis," of which I have seen numerous cases. Menorrhagia existed to an alarming extent, for which I accordingly recommended rest and the recumbent posture during her periods. Because of the pronounced insomnia, I prescribe a nightly dose of hyoscyamine and sulfonal during the first week of treatment as a hypnotic, which constituted the only medication other than "Pepto-Mangan." After having taken the latter for forty-one days I discharged her from treatment, as she had passed her last menstrual period after a normal flow of three days, her pallor having given way to rosy cheeks and her physical and mental condition being entirely satisfactory. Microscopic report showed a relative gain: red blood corpuscles, 38 per cent.; hemoglobin, 47 per cent.

CASE 5.—Mr. C., aged twenty-one years, unmarried. Highly anæmic, very pale. Anorexia and insomnia persistent. Physical condition greatly depressed. Cardinal feature was a sexual hypochondriacal tendency. Gave history of excesses both alcoholic and sexual. Aside from advice as to the necessity of leading a moral life and abstaining from all stimulants, gave no medicine but "Pepto-Mangan," with the addition of arsenic and strychnia. After fifty-seven days of treatment patient was much benefited. Microscopic report showed a relative gain: red blood corpuscles, 9 per cent.; hemoglobin, 27 per cent.

CASE 6.—Mrs. D., aged thirty-six years, married; five children. Since birth of last child, eighteen months ago, has been in state of profound nervous prostration. Previously resisted ordinary tonic and constructive treatment. Menorrhagia was

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the dominant feature of the case. After taking "Pepto-Mangan" for fifty-one days patient evinced more improvement than during any stated time throughout the past eighteen months. Last menstruation approached the normal flow. Microscopic report showed a relative gain: red blood corpuscles, 13 per cent.; hemoglobin, 8 per cent.

CASE 7.—Mrs. J., aged forty-eight years, widow; mother of a large family. Cardinal feature of case was recurrent cephalalgia at intervals of several days. This case reported an improvement as to the intensity and duration of headaches after the period of fourteen days of treatment. Only two blood examinations were made. A further opportunity to observe this patient did not present itself, in consequence of her failure to continue the treatment. Microscopic examination showed a relative gain: red blood corpuscles, 14 per cent.; hemoglobin, 13 per cent.

CASE 8.—H. F., aged eighteen years, school teacher, unmarried. Symptomatology of neurasthenia. Malaria was a complicating feature. Amenorrhœa for past six months was the principal symptom for which she consulted me. Aside from a course of quinine to eradicate the malarial feature, I exclusively gave "Pepto-Mangan." After forty-seven days' treatment she was apparently much improved, her menses having appeared in the interim. Microscopic examination showed a relative gain: red blood corpuscles, 9 per cent.; hemoglobin, 22 per cent.

CASE 9.—Mrs. L., aged forty-two years, married; three children. Comes from neuropathic family, one uncle an epileptic. Has always been quite delicate and anæmic. Since sudden death of husband has mainfested great irritability of temper. Loses control of herself upon the slightest provocation. Cries easily, but not melancholic. Peculiarly apprehensive of sudden death; imagines upon retiring that she will never awake; paroxysmal attacks of anxiety, and fatigued upon the slightest exertion. Anorexia. Habitual constipation. Sleeps restlessly. Patient, although still very pale, after taking "Pepto-Mangan" for twenty-seven days began to manifest a general improvement. Microscopic report showed a relative gain: red blood corpuscles, 11 per cent.; hemoglobin, 12 per cent.

CASE 10.—Mrs. P., aged thirty-six years, married, no children. Family history predisposed to tuberculosis. Physically in good health. Since cyclone, May 27, 1896, when her house was totally destroyed, and she narrowly escaped death, she developed nervous headaches; later on she manifested a listless and apathetic condition. Sleeps excellently, but does not feel refreshed upon awakening. Complains of drowsiness. Marked irritability of temper. Appetite fair, but nervous dyspepsia. Boards with sister, as she can not muster courage to manage a household of her own. After taking "Pepto-Mangan" for twenty-five days she began to feel much brighter and better, but still occasionally lapses into her former indif-

ferent mood. Color better, and nervous dyspepsia greatly relieved. Microscopic report showed a relative gain: red blood corpuscles, 12 per cent.; hemoglobin, 12 per cent.

CASE 11.—Mr. M., aged twenty-nine years. Family history tuberculous. His avocation was that of a "book-maker" during the past few years. The strain of gambling and the consequent excitement and worry have made him a nervous wreck. Jerky and fidgety at all times. Inability to concentrate his mind any time. Suffers from nightmares and phantasmagoria during sleep, which is consequently much disturbed. Is troubled with constipation and greatly impaired digestion. Anorexia marked. Much reduced in weight. Although always fatigued and depressed, he constantly walks to relieve his pent-up nervous irritability. Dreads to be alone for fear something may happen to him. After the administration of "Pepto-Mangan" for twenty-four days, patient reports a general improvement, especially as to his appetite and the relief of his indigestion. Microscopic report showed a relative gain: red blood corpuscles, 11 per cent.; hemoglobin, 12 per cent.

CASE 12.—A. McG., aged twenty years, servant, unmarried. History showed the ordinary "symptom-group" of neurasthenia. After the short period of seven days, having taken but one bottle of "Pepto-Mangan," her condition was greatly alleviated. Microscopic report showed a relative gain: red blood corpuscles, 5 per cent.; hemoglobin, 8 per cent.

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ARE VIRTUES, VICES AND HABITS HEREDITARY?

BY T. J. HAPPEL, M.D., TRENTON, TENN.

President Tri-State Medical Association (Miss., Ark. and Tenn.) ; Ex-President Tennessee State Medical State Society ; Ex-President West Tennessee Medical and Surgical Association ; Ex-President Gibson County Medical Society.

The subject assigned me by your secretary opens up the whole broad field of heredity.

In general terms it is my intention to discuss this question, without giving attention to any of the minute details, whether with regard to the anatomic structure of the nervous system, or any other pathologic question connected with it. Of my own knowledge, I could not trace changes in any of the organs in "degenerates," so called ; hence, to write upon that branch of the subject would require a book article, which, on occasions of this kind, does not suit my taste, nor would it be profitable for us to discuss. I purpose taking up and presenting matters of the every-day life of the physician.

The question of the transmission of physical peculiarities from parent to child needs no time devoted to it. All of us have seen children whom we could recognize from their family likeness. Frequently the son would be mistaken for the father, or the daughter for the mother, but for that difference in appearance due to the disparity in their ages. Breeders of fine stock all have the form and make-up of the sires and dam constantly before them in estimating the value of the expected offspring.

In my own experience, I have lately been in professional relationship to a family in which every child, immediately upon its coming into the world, is examined as to the existence of harelip. Through generations this peculiarity has been handed down. In other families we have found six-fingered children ; in others, a certain "mother's mark," or mole, as a family characteristic. In other families, we find a marked tendency to strabismus, and in others, to some form of talipes. Thus I might continue to enumerate physical peculiarities handed down from one generation to another. That some exciting cause may produce a mark or departure from the normal in the physical condition of the offspring, needs no argument. It has been the experience of many physicians in this meeting to have had to answer, as soon as the child has been separated from its mother and brought to view, and at other times, as soon as it has been expelled from the uterus, as to the condition of the child, "whether marked or not." And when the reason for the question is asked, they have been told that the woman, when pregnant, had been frightened by a snake, a frog, or some unsightly object.

Jacob, serving Laban for his wives, became rich, when by an agreement with his father-in-law he fell heir to all the "ring-streaked, spotted, and speckled young," he having, through maternal impressions, caused a wonderful number of that kind

of progeny. In the Holy Writ we are told that the sins of the fathers are visited upon the children even of the third and fourth generations. Other matter might be cited along this line, but suffice it to say that some men's sins do go before them unto judgment, and others follow after them.

I do not desire to be understood as taking the position that a disease is, as a rule, handed down through heredity to the children of the first generation. We have only to look around us to disprove this position.

A father and mother lived to be more than fourscore years of age, enjoying a reasonable degree of health and strength, but of their children, two sons and one daughter died of tuberculosis, and the end is not yet.

The transmission of syphilis by heredity is not questioned in this age, but a syphilitic father may beget children who, so far as we can judge, show no trace of the disease, but the offspring of those children may, and frequently do, give evidence of some dyscrasia, whether syphilitic or tubercular. A generation in which the rule had been perfect health passed away before the vice of the parent was exhibited.

When we contend that virtues and vices are transmitted by heredity, we do not take the position that, as in the transmission of physical marks, like produces like, but that there is begotten in the offspring of the degenerate a certain peculiarity of nervous development that may, at any moment, show some abnormal state. An epileptic may not always beget an epileptic child, but in some cases other brain infirmities may be shown. An imbecile may result from the marriage of epileptics. An idiotic child was the result of the marriage of two beings of a very low order of intellect whom I knew. A child begotten by a father whilst in a drunken debauch may, nay frequently proves to be a degenerate.

A friend reports to me the case of two beautiful daughters begotten by a father who was never free from alcoholic influence, both of whom are epileptics. So far as the family history is known, there had never been a case of epilepsy in either paternal or maternal branch. Children born of such parentage may become addicted to the use of alcohol, or may become morphine habitues, or maniacs. The medical and surgical history of the war of the rebellion reports that in a village in one of the New England States, as a result of intermarriages—many of the population being epileptics and imbeciles—almost the whole population showed abnormalities of various kinds to such an extent that not one in the community was fit for military service.

In my own experience as a practitioner of medicine for twenty-five years, I have known five members of one family to die of cancer; two of the breast, one of the brain, one of the liver, and one of a colloid cancer springing from the neck of the bladder. In this family the dyscrasia can be traced back through generations, so that every member of it now living

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looks with horror upon any sore or localized pain wherever found, expecting a development of the dreaded scourge.

In our every-day life we can see the drunkard's children following closely in the footsteps of the father, unless the mother had sufficient individuality to impress the children with some of her own better qualities. My experience, however, is that the sons are more apt to be impressed by the father's vices, the daughters by the mother's, but this is not laid down as a rule.

In an article presented by me some years ago to the Tennessee State Medical Society upon the question of morphinism, I gave the history of one mother, a morphine habitue, who gave birth to four children, three of whom died within one week, with every evidence of cyanosis, due to non-closure of the foramen ovale (caused by the use of morphine on the part of the mother), and showing nervous symptoms that could be allayed only by the use of opiates. The fourth child born to this mother lived about six months, demanding during the first few weeks of its existence large doses of paregoric to quiet it and give it sleep. It was at all times a poorly nourished child, showing dyscrasias of various kinds during its short life.

Another mother was reported as having given birth to three children under similar circumstances, two of whom died in exactly the same condition as did the first ones mentioned in the preceding case, whilst the third child now lives, a delicate, puny, nervous child. Another mother gave birth to two children, one being still-born, the other living, aged now, three years. This child required large doses of opiates to carry it through its first month.

Another mother, using morphine freely, aborted twice in the early months of pregnancy. She has now one grown son, who has for a long time been addicted to the use of morphine. To a father who used morphine in enormous doses a son was born, who, at the age of seven years, is just able to talk intelligibly. To a father who was addicted to the use of both morphine and whisky, two sons and two daughters were born. Both of the sons became sots and morphine eaters, and in early manhood one died; the other is a mental and physical wreck. The girls, so for as I know, show no dyscrasias of any kind. The mother had never used drugs.

From another source, I find that a child was born to a morphine-using mother, which child was nervous and fretful from its birth, and after various means had been resorted to quiet it, was given morphine. From that moment the child was never at rest except when under the influence of the drug. A mother who, whilst pregnant, craved alchohol, and used liquor frequently during the whole nine months, gave birth to twin boys. Growing up to manhood, nervous and irritable, both died confirmed sots.

It might, however, be argued that in some of the cases cited above, the vice developed, not from heredity, but as a result

of being brought habitually in contact with drunken fathers or morphine-eating mothers, or vice versa, but case after case can be cited where children born to sots or opium habitues had been removed to entirely new environments, where they knew nothing of their parents or their habits, and yet the same sad story has been repeated in their cases. I do not wish to be understood as contending that this rule holds good in all cases in these two vices, but, as in tubercular subjects, a whole generation may escape. Again, in my own work, I have recently seen a father, a slave to alchohol, die of pneumonia, and within less than two months of his death, a son, who had suffered, six months before, from an attack of apoplectic congestion, died of softening of the brain. The son had never used alcohol in any form, but had never been mentally bright, though a steady worker. The probabilities are that the son was begotten during a drunken debauch, and the sins of the father were thus transmitted to the son.

Mental peculiarities, virtues as well as vices, can be traced through several generations. In some families the trend is toward the ministry; in another, to the law; in another, to medicine; and in another, to politics.

From the *Herald of Health* I gather the following: Demme studied ten families of drinkers and the same number of temperate persons. The ten families of drinkers produced fifty-seven children. Of these twenty-five died within the first few months of their life; six were idiots; five showed abnormalities of growth; five were affected with epilepsy; five with inborn diseases, and one with chorea. Thus, then, of the fifty-seven children, only ten, or 17.5 per cent., born to drinkers, were normal in all respects. The other group of sober families had sixty-one children. Five died in the first week; four had curable diseases of the nervous system, and only two presented inborn defects. The remaining fifty, or 81.9 per cent., were normal in their physical and mental development. Thus it is shown that the prevailing mortality among the children of drunkards is fearful, and that the survivors represent a progeny afflicted with unsoundness of mind, idiocy, epilepsy, and various other nervous disturbances, whilst only a small per cent. of them grow up to be useful members of society.

This paper thus far has treated of the more important feature of heredity, namely, the transmission of vices, but the converse of the proposition is also true. Virtues also descend from parent to child, not always as the same virtue, but the sound body and sound mind furnesh fruitful soil for the germination of the good seed sown by the sower. In every community families can be traced through generations without revealing vices in the children, and when in the course of time in some branch of the family we find a departure from the virtues of the other branches, this can easily be shown to be due to heredity from the other side of the family tree. *Memphis Medical Monthly.*

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NOTES.

LETTER ON SUCCESSFUL TREATMENT OF SARCOMA.

Thamesville, Ont., June 13, 1898.

J. McFadden Gaston, Esq., M.D., 1½ Edgewood ave., Atlanta, Ga.

DEAR DOCTOR: I dare say you would care to know how we are progressing with Cataphoresis. I do not know, of course, how much credit is due to your line of treatment, but the fact is that my brother is at present in excellent health, with no appearance of disease about him, whereas over a year ago I had thought that further attempts to save his life would be useless, and I was backed up in this by several good men. Certainly had we allowed the case to take a natural course he would have been dead before now. The tumor was removed as often as it recurred—averaging once in two months. I commenced treatment by Cataphoresis on June 24, 1897, and have continued it since, together with the administration of succus alteraus and Donovan's solution. I had to remove tumor three times, however, viz.: August 30; October 21; December 31; and now for nearly six months have not had any sign of trouble. Before commencing this treatment the tumor had been removed five times with an average interval of two months.

MICROSCOPIC REPORTS.

First—Adeno Sarcoma of Testicle. Dr. Cavan, Toronto.
Second—Round Celled Sarcoma (first recurrence). Dr. Anderson, Toronto.
Third—Carcino Sarcoma (third recurrence). Dr. Anderson, Toronto.
Fourth—Adeno Carcinoma (fifth, sixth and seventh recurrences). Dr. Cullen, Johns Hopkins Hospital.

Of course it is too soon to speak with confidence, but perhaps this seeming prospect of success even, may encourage some one else to persevere.

My experience with this case would lead me in a similar one, to remove the recurring growths as early as possible. Seeing that there is no room for a radical operation, I would remove only enough tissue to insure complete removal of growth—not cutting as wide as possible, but saving tissues for future operations. I would avoid using ligatures if at all possible to control bleeding points without them, and I would persevere with Cataphoresis, using the positive electrode near the tumor and the negative at a considerable distance from the same. Twice in this case I have had to dissect very carefully the growth from the urethra and felt sure that a recurrence would take place there, but was agreeably disappointed to find the next appearance at a different part, thus getting as good a result as if I had cut wider, and with a very great saving of

discomfort to the patient. The last removal of the growth did not extend much more than one-fourth inch away from the tumor.

I have often wondered whether that patient with disease of penis, whom you mentioned in one of your letters, had received benefit or not. You said another medical man had asked you about your treatment and proposed trying it with him.

I have to thank you again for your kind assistance and courtesy in this case, and only hope that the termination of it may be such as will place me in a position to more publicly acknowledge the same. I remain very truly yours,

R. N. FRASER.

Dr. F. S. Bourns, Professor of Pathology and Bacteriology, has been granted a leave of absence of one year. He has been appointed on Gen. Merritt's staff to the position of surgeon with the rank of major to serve in the Phillipine expedition. Dr. Bourns' experience admirably qualifies him for the part assigned, and his advice is sought by the government departments in many matters of importance concerning our new possessions in the East. He spent four years of wandering among those islands and in Borneo in the interest of the Minnesota Scientific Society, for the purpose of making advanced study of the birds of the Phillipines. He is familiar with the topography of the country, and speaks many of the island dialects. Such an experience, which falls to the lot of a few, will be of great value when applied to furthering the interest of the government.

In the absence of Dr. Bourns, Dr. Claude A. Smith, who has been associated with him, will have charge of his affairs and is prepared to make pathological examinations of urine, faeces, sputum, etc., and for which they have fitted out offices in the Grand building.

Dr. W. Owens, Southern Medical College, class of '97, has returned from a year's stay abroad and has taken offices in the English-American Building. He expects to limit his practice to diseases of the eye, ear, throat and nose.

Dr. Marion Hull, formerly of Athens, is now associated with Dr. J. Scott Todd.

Editorial.

MEETING OF THE ALUMNI ASSOCIATION OF THE SOUTHERN MEDICAL COLLEGE.

As previously announced in THE SOUTHERN MEDICAL RECORD, the meeting of the Alumni Association of the Southern Medical College will take place July 20, 21 and 22.

The alumni of the college number about five hundred, while the number in Atlanta alone is beyond fifty. The institution should celebrate the close of a score of years since the original charter was granted. The love of every student for his *alma mater* is strengthened and sustained by the past record of the college. At no time in its history did the Southern Medical College stand for anything but clean, unhampered methods. Since its organization the Southern Medical College has grown and developed until now the record which it has made should be an incentive to the graduates to perpetuate its name in the new century as the Alumni Association of the Southern Medical College.

We are sure that no graduate of the college will fail to attend this meeting, if practicable. Notice by letter has been given those whose addresses were known, but necessarily many have been omitted. The exchanges are asked to copy this and to help the dissemination of the news in this way.

A medical society of alumni is the purpose and scope of the present reunion. The many practitioners who fail to report cases to the medical societies now in existence have led to the impression that an informal interchange of experiences may bring out their latent talent. The Kimball House is prepared to furnish a convenient room for the meeting and will be the headquarters. Many alumni will be in the city on account of the Confederate Veterans' reunion.

The papers which will be presented are short reports of the cases and suggestive remarks thereupon. The discussion is especially desired.

The present occasion is an auspicious time. The alumni of the Southern Medical College are requested to co-operate, one and all, to make this meeting a success. The alumni of many of the medical colleges are organizing for mutual improvement, and why should not the Alumni Association of the

Southern Medical College continue their present body, and in so doing improve the ethics and the standard of the profession?

The Southern Medical Society was the name of the medical society of the undergraduates of the Southern Medical College. The president for next year has doubtless been elected, and we would suggest to him and its members the continuation of this society also.

If it will be of any value to the profession in enabling the busy practitioner to keep a record of cases, we would mention an especially useful chart. Write to the Imperial Granum Food Company, New Haven, Conn., for sample copies of their new "Nursing World Fever Chart," for recording the vital signs and other information relating to the baths given in the treatment of fever cases. It is very complete and will be found especially useful in typhoid fever. We like it because in recording temperature no zigzag lines are needed.

ERRATUM.—On page 280 of the May issue of THE RECORD, in middle of page, read one-third fare, as follows:

"A meeting of the Alumni Association of the Southern Medical College is called for the 20th, 21st and 22d of July, 1898. For further information write to the undersigned or to the secretary, Dr. J. R. Shannon, Cabaniss, Ga. Railroad rates *one-third* fare on all roads, due to the meeting of the Confederate Veterans' reunion.

"J. McF. GASTON, JR., A.M., M.D., President."

THE MEDICAL COLLEGES UNITED.

It is said that the unexpected always happens. It is very certain that nothing could have been more unexpected than the recent coalition of the Atlanta and the Southern Medical Colleges to form the Atlanta College of Physicians and Surgeons. The spirit of rivalry always existing between the two institutions had grown more and more marked, and was very near to causing a schism in the body medical of this city. The ease and facility with which old wrongs were adjusted, old grievances wiped out, all differences settled and consolidation effected, clearly demonstrated the superficiality of prejudice on both sides, especially when measured against the general good of the profession.

The combination is necessarily a strong one, and it requires no gift of prophesy to foretell that the Atlanta College of Physicians and Surgeons is destined to become one of the leading institutions of its kind in the South, and one of the thriftiest handmaids in the the service of science.

The new faculty is as follows:

A. W. Calhoun, M.D., President, and Professor of Diseases of the Eye and Ear, Nose and Throat.

W. S. Kendrick, M.D., Dean, and Professor of the Principles and Practice of Medicine.

Wm. Perrin Nicolson, M.D., Professor of Anatomy and Clinical Sugery.

H. P. Cooper, M.D., Professor of Anatomy and Clinical Surgery.

W. F. Westmoreland, M.D., Professor of Principles and Practice of Surgery.

J. S. Todd, M.D., Professor of Materia Medica.

L. H. Jones, M.D., Professor of Chemistry.

W. S. Elkin, M.D., Professor of Operative Surgery.

F. W. McRae, M.D, Professor of Gastro-Intestinal and Rectal Surgery.

J. Clarence Johnson, M.D., Professor of Physiology.

Virgil O. Hardon, M.D., Professor of Obstetrics and Gynecology.

J. G. Earnest, M.D., Clinical Professor of Gynecology..

F. S. Bourns, M.D., Professor of Pathology and Bacteriology.

Dunbar Roy, M.D., Clinical Professor of Diseases of Eye and Ear.

Details of the disposition of lecture rooms and dispensary department have not yet been arranged, but it is probable that the Southern building will be used for the clinics.

BUSINESS DEPARTMENT.

Address all letters relative to business matters and make all money orders payable to B. M. Zettler.

If the SOUTHERN MEDICAL RECORD is sent to any one who does not wish it, or beyond the time he intends to pay for it, the manager must be informed directly to stop it. It will not be sent knowingly to any one who does not wish it, but if notice is not given to discontinue, payment will be required for the time it is sent.

ATTENTION.—All communications and all matters pertaining o this department must reach us by the 20th of the month to insure insertion in the following month's issue.

Special Notes.

HIGHEST THERAPEUTICAL VALUE.—Dioviburnia has stood the critical test of the most exacting Physicians for years and has been pronounced of the highest therapeutical value. Can always be relied upon in all functional disorders of the Uterus and Appendages, whether Acute, Sub-Acute or Chronic.

The limit of toleration is so quickly reached in a majority of cases where the Salicylates are given, that physicians are often puzzled to find means to continue their exhibition, especially in Rheumatic conditions requiring prolonged employment. A vehicle, therefore, minimizing these adverse effects, and at the same time of particular indication in such conditions, must obviously make an ideal treatment.

Such a vehicle the Practitioner has in the Phillips' Milk of Magnesia, one of the most advantageous menstruums yet employed for this purpose, completely embodying the desirable features noted.

Mention of this would seem superfluous to the Profession, so generally has the preparation been used with marked success for many years in this connection; but a good thing will bear repitetion of its virtues.

In conjunction with the Iodides, and Bromides, Milk of Magnesia forms an equally useful association; and as the summer season is at hand, it will be well to recall that in the Gastro-Intestinal disturbances of children, this preparation ranks high as a remedical agent. It is a superlor neutraiizer in systemic or local hyper-acid conditions.

TRUE AMERICANISM.—Physicians and pharmacists, like the masses of the people, have tired of the arrogation of superiority implied by the announcements of foreign manufacture, and are revolting against them. This spirit is especially commendable at the present time, when a vast wave of patriotism is rolling over the land, maikng the North and the South, the East and the West as one band of brothers by its magic influence. The Antikamnia Chemical Company, of St. Louis, in all of its advertising matter, whether through the journals or by circular, takes particular pains to impress upon physicians and pharmacists that its goods are made in America, by Americans, and for American use. This enterprising company realizes that the words "made in Germany," or "made in France," no longer possess the influence and meaning they once had. The people of this country no longer scorn or underrate the products of their own native laboratories and work shops.—*The National Drugist.*

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The superiority of the elixir consists in uniting with the Phosphates the special properties of the Cinchona and Prunus, of subduing fever and allaying irritation of the mucous membrane of the alimentary canal, which adapts it to the successful treatment of stomach derangements and all diseases of faulty nutrition, the outcome of indigestion, mal-assimilation of food and failure of supply of these essential elements of nerve force and organic life. The special indication of this combination of Phosphates in Spinal Affections, Caries, Necrosis, Ununited Fractures, Marasmus, Poorly Developed Children, Alcohol, Opium, Tobacco Habits, Gestation and Lactation to promote Development, etc., and as a physiological restorative in sexual debility, and all used-up conditions of the nervous system, should receive the careful attention of good therapeutists. Phosphates being a natural food product, no substitute will do their work in the system.

DOSE: For an adult, one tablespoonful three times a day after eating; from 7 to 12 years of age, one dessertspoonful; from 2 to 7, one teaspoonful; for infants, five to twenty drops according to age.

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